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MEANS TESTING IN COST RECOVERY OF HEALTH SERVICES IN DEVELOPING COUNTRIES

Phase 1:
Review of Concepts and Literature,
and Preliminary Field Work Design

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ABSTRACT

In developing country health sectors, the importance of means testing has been brought forth by increased reliance on user fees to help finance services. This paper provides a conceptual framework for understanding the role that means testing can play in promoting equity in the health sector, as well as a survey of over 60 means-tested programs worldwide. Means testing is placed in the broader context of targeting and contrasted with other targeting mechanisms. The paper examines important policy and practical issues involved in the design and implementation of means tests. For example, how are the target population and eligibility criteria defined, and how do these definitions differ from those used in income transfer programs? What are the tradeoffs between spending on benefits and spending on improved means-testing accuracy? How are outcomes evaluated? The survey of previous means-testing experience suggests certain elements of design enhance or diminish the likelihood of success. Finally, an agenda for future research is proposed.

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EXECUTIVE SUMMARY

This paper represents the first of three phases of applied research being carried out by the Health Financing and Sustainability (HFS) Project in the area of protecting the poor under cost recovery policies. The document provides the foundations for phases two (field work) and three (analysis). The purpose of this paper is to define key terms and concepts used in discussions of means testing as part of a health care cost recovery system, review the literature and practical experience in this area, identify gaps in knowledge to be filled by conducting applied research in the field, describe specific hypotheses to be tested, and provide a preliminary research design for the study of means testing in the context of health care cost recovery.

Historically, government-provided health services in developing countries have been offered free of charge. During the mid-1980s, policymakers and government officials became more interested in health sector cost recovery as a means of improving health services and alleviating strain on government budgets. The growing number of developing countries contemplating or implementing cost recovery policies has prompted much debate, particularly over the equity of cost recovery. A central question in this debate is, "Does cost recovery further restrict the poor's access to health services?" The paper details various dimensions of access and equity and proposes that the equity goal of health sector means testing should be removal of barriers to access to basic services arising from inability to pay health fees.

Health resources can be channeled to the poor using a variety of targeting mechanisms, of which means testing is just one. The feature that distinguishes means testing from other mechanisms is that *specific individuals or households* are classified as eligible or ineligible for benefits according to established income-related criteria. In the context of health care cost recovery, the means test is the mechanism by which indigent patients are identified and exempted (partially or wholly) from paying health fees on the basis of income or income-related characteristics. The paper places means testing in the broader context of targeting and shows how outcomes can be improved by using targeting strategies which combine means testing with other mechanisms.

Certain principles apply to all targeting mechanisms. Targeting outcomes can be evaluated in terms of coverage (percentage of the target population receiving benefits), undercoverage (percentage of the target population not receiving benefits either because of targeting errors or insufficient program resources), incidence (percentage of program benefits going to members of the target population), leakage (percentage of program benefits going to people outside the target group), cost, and efficiency. In general, the more stringent the targeting effort, the more precise the targeting. Although increased targeting precision generally saves resources by reducing leakage of benefits to the general population, it is also associated with increased targeting costs. The optimal (i.e., most efficient) targeting strategy is not necessarily the most accurate, but rather the one that comes closest to equating the marginal gain from targeting effort (as defined by the policy objective) to marginal targeting cost (Kanbur and Besley, 1988).

The choice of targeting strategy depends in part on the policy objectives. Health care—unlike cash or food—is typically provided by governments to the general population, not just to the poor or needy,

and health policy is not explicitly formulated to redistribute income or welfare. Thus, in contrast with many cash transfer and nutrition programs, the objectives of health sector targeting are two-fold: to protect the poor and enforce collection from those able to pay. As cost recovery becomes more widely used to help finance health services, efforts to identify patients on the basis of ability to pay become ever more prevalent and crucial, and developing country governments find that they can no longer rely exclusively on targeting mechanisms other than means testing.

Important policy and practical issues are involved in designing and implementing a means test. For example, what low-cost methods can be used to assess ability to pay? On what criteria should eligibility for exemption be based? How accurate are means-testing methods, and what is the tradeoff between excluding non-eligible people from receiving benefits free of charge and unintentionally denying benefits to members of the target population? What is the tradeoff between spending resources on benefits and spending resources on targeting? Who should conduct the means test—health facility personnel, local authorities, or the central government?

Means testing (especially in the health sector) is a relatively neglected topic in the literature on public finance, despite the fact that inability to conduct effective means tests is one of the biggest obstacles to both equity and cost recovery in developing country health sectors today. As one author puts it, "More attention must be paid to cost-effective methods for screening the very poor out of paying user charges, and making sure that those who can pay do pay" (Vogel, 1988). Another author states that means tests are "frequently thought to be infeasible" and that "[t]he reluctance to use them is based on the fear that they may require more organizational, administrative, or logistical capacity than many programs can realistically muster, even with adequate administrative budgets" (Grosh, 1992a). She goes on to say that although "highly accurate, sophisticated means tests may well be too hard or too expensive for developing countries," a wide range of means-testing options exists, and "less precise, simple means tests may be a workable option."

To get a sense of the range of practical means-testing experience, a survey was taken of 56 targeted projects in developing countries, the majority of them employing means tests. In-depth descriptions of selected programs were provided to illustrate the varying conditions under which targeting is applied, types of problems encountered, and degrees of success. Because information on means-tested health services is restricted, the survey includes 23 programs which either do not employ means tests or are outside of the health sector. Experience from other sectors influences the design of health sector means tests and provides an indication of existing means-testing capacity, but it should be noted that, just as the choice of targeting strategy depends on policy objectives, the design of a means test depends on the nature of the program. For example, most means tests in developing countries have been designed for general poverty alleviation or nutritional improvement, and have therefore defined the target population in terms of overall welfare, as gauged by either income or consumption measures. Ability to pay for health services and welfare, though highly correlated, are not the same thing, and thus, eligibility criteria will differ. Specifically, wealth and non-monetary factors influencing welfare (e.g., food production, land holdings, and livestock) play a secondary role to cash income in determining ability to pay health fees.

Although the wide variety of information sources and lack of standard performance criteria limit comparability across projects and make it difficult to conclusively isolate determinants of successful means testing, the paper draws a number of important conclusions from previous targeting experiences. One of the most striking impressions given by the survey is the great variation in the details of means-testing design, outcomes, and costs. Even for similar programs and facilities, there is great variation between and within countries in the percentage of patients classified as indigent—greater variation than differences in actual socioeconomic composition warrant. Grosh (1992a) found that the range of incidence (percentage of benefits accruing to the poor) varied more in means-tested programs than in other targeted programs, and the range of administrative costs (as a percentage of total program costs) was much higher for means testing than for other targeting mechanisms. The variations in means-testing structure, costs, and outcomes seem to signify the importance of the specific conditions under which means tests are conducted.

For example, targeted social welfare programs in Latin America and Asia were much more likely to have formal, written, or centralized application processes and administration than programs in Africa, where infrastructure and literacy lag behind. (Latin American programs were also the most likely to be judged successful.) A large majority of means-tested programs, and all those judged successful, employ other targeting mechanisms, but these additional mechanisms play quantitatively and qualitatively different roles depending on the case. If modern health services are available through the private sector, self-selection will reduce the proportion of better-off patients seen at government facilities. Another example of how the context shapes means-testing experience is shown by measures to verify information furnished by the applicant. As expected, verification was observed when costs were low (e.g., home visits in densely populated, poor, urban neighborhoods) or when program benefits—and potential leakage—were high (e.g., health insurance and inpatient care).

When means testing and fee collection unravel or fail to take hold in the first place, it is sometimes because exemption criteria and payment categories have become outdated or were never effective at meaningfully differentiating patients by ability to pay. Differences in outcomes also arise from differences in governments' or facilities' commitment to cost recovery. As Grosh points out, "weak implementation of these fee-waiving mechanisms may reflect some ambivalence toward the whole notion of charging fees" (1992a). Similarly, "[t]he success of means testing often depends on the incentives provided to the administering agents. If a facility does not retain user fees and therefore has no incentive to collect fees, the facility personnel may classify all patients as indigent" (Levine et al., 1992).

Elements of means-testing design which seem to enhance the likelihood of success are the following: clear, formal criteria, with little discretion left to the person administering the test; at least some local or central involvement in the screening, registration, or verification process (as opposed to placing the entire burden of means testing on facilities); a requirement that exemptions be renewed periodically; and routine measures to verify information. More quantitative research is needed to refine these generalizations and better understand the interrelationships between leakage, incidence, coverage, costs, and impact on equity of means testing.

The paper proposes an agenda of research in this area. HFS has numerous opportunities to conduct means-testing research at relatively low cost in countries where HFS is already working. The paper outlines preliminary designs for five studies in the poorest regions of the world, where the need to protect the indigent and conserve government resources is especially urgent. The proposed studies are of (1) government non-hospital facilities in Niger, (2) hospitals in Niger (all but one run by the government), (3) private voluntary facilities in Haiti, (4) church-related facilities in Kenya, and (5) facilities in Benin, the last study being a retrospective analysis of data available through UNICEF. The choice of study(ies) to be conducted will depend on available resources and methodological considerations discussed in the paper.

1.0 INTRODUCTION

The biggest objection to health care cost recovery in developing countries is that cost recovery will create more suffering for the poor. It is argued that cost recovery is inequitable because charging fees for health services will cause utilization by the poor to decline to unacceptably low rates, and fees will impose undue financial hardship on those poor who do seek and pay for care. There are important counterarguments to these claims, and in any case, cost recovery remains an increasingly popular method of financing health care. Still, it is widely recognized that one of the biggest challenges facing cost recovery programs is finding cost-effective mechanisms to target public health subsidies to the poor. Under cost recovery, means testing can be an important tool for targeting health services to the poor or other vulnerable populations. Means testing can allow the health system to identify and exempt from payment (totally or partially) those who are unable to pay user fees, or who would suffer undue financial hardship by doing so. The purpose of this paper is to examine means testing as a mechanism for meeting equity goals in the presence of cost recovery. Section 2.0 defines key terms and concepts used in discussions of means testing as part of a cost recovery system and develops a theoretical framework for evaluating the effects of means testing. Section 3.0 reviews the literature and practical experience in this area, and Section 4.0 identifies gaps in knowledge to be filled by conducting applied research in the field, notes specific hypotheses to be tested, and provides a preliminary research design for the study of means testing in the context of health care cost recovery.

In general, means testing is the process of determining individual or household eligibility to receive benefits, where eligibility is evaluated according to established criteria, usually income or income-related characteristics. In the context of health care cost recovery, means testing refers to identifying and totally or partially exempting indigent patients from paying for health services, thereby increasing access of the poor to health services and improving the equitability of the health system. Although the importance of means testing arises in the context of health care financing and cost recovery, means testing itself concerns the provision of health services as distinct from the financing of health services. Once the decision has been made to finance health services through cost recovery, means testing is a mechanism for providing services to the poor.

Means testing is a relatively neglected topic in the literature on public finance. As one author puts it, "More attention must be paid to cost-effective methods for screening the very poor out of paying user charges, and making sure that those who can pay do pay" (Vogel, 1988). The terms "means testing" and "targeting" are often used interchangeably, although targeting need not always be accomplished through means testing. This paper draws a distinction between targeting and means testing, the first being a process of channeling resources to certain groups and the second being a mechanism for making targeting more accurate—in particular, targeting on the basis of income or wealth. Means testing is just one of a range of targeting options, each of which can be used alone or in combination with other methods. Other targeting tools include price subsidies on selected goods or services known to be consumed by the target population and provision of benefits to people having specific characteristics (characteristic targeting). More theoretical and empirical information is needed to

understand how best to target and the tradeoffs between various methods of targeting, of which means testing is an important one.

Important policy and practical issues are involved in designing and implementing a means test. For example: What low-cost methods can be used to assess ability to pay? On what criteria should eligibility for exemption be based? How accurate are means-testing methods, and what is the tradeoff between excluding non-eligible people from receiving benefits free of charge and unintentionally denying benefits to members of the target population? What is the tradeoff between spending resources on benefits and spending resources on targeting? Who should conduct the means test—health facility personnel, local authorities, or the central government?

Research questions HFS will address relate to how to protect the access of poor populations to health care services in the face of implementation of cost recovery policies in developing countries. As indicated in the HFS Applied Research Agenda (HFS, 1991), the underlying issue is how to identify the poor in a cost-effective way and design workable programs that target public subsidies to them. Specific research questions addressed in this phase and through subsequent field work are as follows:

- What are the objectives of targeting subsidies to the poor? Of means-testing systems?
- What means-testing systems are used in industrialized countries?
- Are these systems workable in developing countries, given their administrative and informational requirements?
- How are the poor identified and protected in health and other sectors in developing countries?
- What are proven methods to achieve the objectives of means testing?
- What unproven methods should be tested?
- What are the administrative costs of various means-testing systems?
- What are the tradeoffs between costs and accuracy in means-testing systems?

The paper is intended for researchers and policymakers in the area of health financing in developing countries as well as graduate students in health economics. The rest of the paper is organized as follows: Section 2.0 defines access, equity, targeting, and other concepts needed to provide a framework for discussing means testing; Section 3.0 summarizes the means-testing experience and literature to date, with reference to both the U.S. and developing countries; and Section 4.0 sets forth an agenda for further research on means testing in the health sector.

2.0 CONCEPTUAL FRAMEWORK

This section provides background information for a discussion of means testing and develops a theoretical framework for evaluating the effects of targeting in general and means testing in particular. It describes the context in which means testing becomes relevant and defines key terms and concepts. A general discussion of targeting is followed by discussion of means testing. A model which formalizes many of the ideas developed here is presented in Appendix A.

2.1 THE CONTEXT: THE RISE OF COST RECOVERY

Historically, government-provided health services in developing countries have been offered free of charge, particularly at non-hospital facilities. During the mid- 1980s, policymakers and government officials became more interested in health sector cost recovery as a means of improving health services and alleviating strain on government budgets. For example, the 1987 Bamako Initiative promoted by UNICEF drew widespread international attention to the idea of improving primary health care through community financing of essential medicines, and since that time numerous sub-Saharan African countries have instituted cost recovery measures such as user fees or health taxes for primary care services (Creese, 1990; Parker and Knippenberg, 1991; Dunlop and Vian, 1992). The growing number of developing countries contemplating or implementing cost recovery policies has prompted debate over the effect cost recovery has on efficiency and equity of health services, particularly the degree to which cost recovery further restricts access by the poor to health services (Griffin, 1988; Vogel, 1988).

Debate over the worthiness of cost recovery has focused on both the efficiency and equity effects of cost recovery, especially as they effect the poor. To better understand this debate and evaluate the efficiency of equity-promoting policies such as means testing, we define efficiency, access, and equity.

2.2 EFFICIENCY

A perfectly efficient health system meets the following criteria:

- It produces the greatest output possible with available resources. The most health services are produced for the available nurses, doctors, drugs, bandages, x-ray machines, etc.[1]
- It uses the lowest cost inputs to produce that level of output. Thus, output is produced at the lowest cost. For example, highly paid doctors do not perform services that could be performed as well or better by nurses. Together, these two criteria imply that output is produced at the lowest cost.
- It produces the best type of output, i.e., the mix of health services most beneficial to the population. The most

[1] Output can also be defined as the amount of health improvement as measured by some indicator such as the number of (quality-adjusted) healthy days of life (HDLs) saved. See Ghana Health Assessment Project Team (1981) for a discussion and application of HDLs.

efficient mix of output depends on the epidemiology and tastes of the population in question and thus, varies locally. For example, a health system serving a predominantly young population and producing mainly cancer treatment is not efficient. Nor would it be efficient if it produced only vaccinations and other preventive care to the exclusion of cancer therapy, malaria treatment, emergency care to accident victims, and any other services appropriate to the particular epidemiology, tastes, and values of that population (Jamison and Mosley, 1990).

In economic terms, efficient production requires that a given service continue to be produced as long as the extra (marginal) social benefit of the service outweighs the extra (marginal) social cost of producing it. Social benefits include benefits going to the patient and other members of society. For example, vaccinations protect not only the vaccinated, but society at large by curbing the incidence of contagious diseases. Similarly, social costs include all costs of treatment, both costs borne by the patient and by others.

Economic theory and a limited amount of empirical evidence have been used to argue that cost recovery can improve the efficiency of both consumption and production of health care. The main efficiency arguments made in favor of cost recovery are that it:

- Curbs "moral hazard" (i.e., reduces consumption of low-value services, namely, services for which social costs outweigh social benefits);
- Discourages the use of high-level, high-cost facilities for illnesses which can readily be treated at lower-level, lower-cost facilities;
- Encourages people to consume preventive care to reduce future out-of- pocket payments on curative care;
- Compels health care providers to be more efficient by obliging them to pay attention to the costs of inputs and quality of care and patient satisfaction. (This argument is most likely to hold if facilities are authorized to retain and control at least some of the revenues they collect and if facility personnel receive bonuses based on cost recovery performance. These conditions give providers both the incentive and the means to attract revenues and keep costs down, i.e., to maximize profits or minimize losses);
- Gives the government better signals to guide investment and production decisions within the health sector (e.g., building hospitals vs. building rural clinics), and
- Allows consumer tastes to determine the society's overall mix of production (health vs. non-health). (This argument is most likely to hold if consumers have perfect information about the relative benefits of health care and all other goods, a condition which often does not hold.)

The main efficiency arguments against cost recovery are that goods and services with positive externalities will be underconsumed if the price is set at marginal cost, and provider behavior will not become more efficient unless providers are given the proper incentives to

better manage resources and collect fees from patients. For a more detailed discussion of the efficiency effects of cost recovery, see Birdsall (1987) and Griffin (1988).

Efficiency can be examined at various levels: the overall economy, specific sectors in the economy such as the health sector, and specific tools used to achieve policy objectives, such as means testing as a mechanism for achieving equity goals. Later, we will analyze the efficiency of targeting tools at promoting equity. It should be noted that the efficiency of a targeting program might run counter to the efficiency of the overall economy because of negative incentive effects (Sadka et al., 1982, and Sections 2.6.6. and 2.6.7.).

2.3 ACCESS

Access is defined as the ability to receive health services and is influenced by a mix of demand and supply factors. It is not equivalent to utilization or consumption of health services, despite the fact that authors often use access and utilization interchangeably. For example, two individuals who are identical in every way (preferences, income, etc.) except health status will consume different amounts of health care, not because of differential access but because of different medical needs. Another example is two individuals with the same health status and income who live the same distance from a health facility, only one of whom seeks care. Their different health-seeking behavior is due to different preferences, not to differential access (Culyer et al., 1992a and 1992b). Similarly, two different ethnic groups with equal access to formal health services could have markedly different utilization rates due to cultural factors such as reliance on traditional remedies. In practice, access is difficult to measure directly, and utilization rates are used as proxy indicators of the degree of access different groups have to health care. Thus, an imperfect but operational definition of access is the following: the probability that someone of a given health status will seek and receive health care (assuming uniform quality of care).

Since the probability of receiving care depends in part on distance from health services, both physical and financial factors influence access as shown schematically in Exhibit 2-1. The horizontal axis represents the distance an individual lives from the nearest facility (which corresponds to the time and transport costs incurred to obtain care), while the vertical axis represents the individual's income. Because **a** lives near a health facility and enjoys relatively high income, she has greater access to health care than **b**, **c**, or **d**, whereas **d**, who is both poor and lives a great distance from a health facility, has the lowest access to health care. (Whether **b** has greater access than **c** or vice versa depends on the relative magnitudes of the income and distance differences, and the effects these differences have on the probability of seeking and receiving care when sick.) Low income can act as a barrier to access even in the absence of a charge for health care, for example, because of the cost of missing work for purposes of seeking treatment. To add the effects on access of physical and financial factors, economists often convert physical access measures into financial terms. This is done by estimating the opportunity cost of transport and waiting time and by counting the price paid for transportation (Ellis and Mwabu, 1991).

The reasoning in Exhibit 2-1 has been borne out by empirical evidence. Compared to rural populations, urban dwellers generally have easier physical access to health

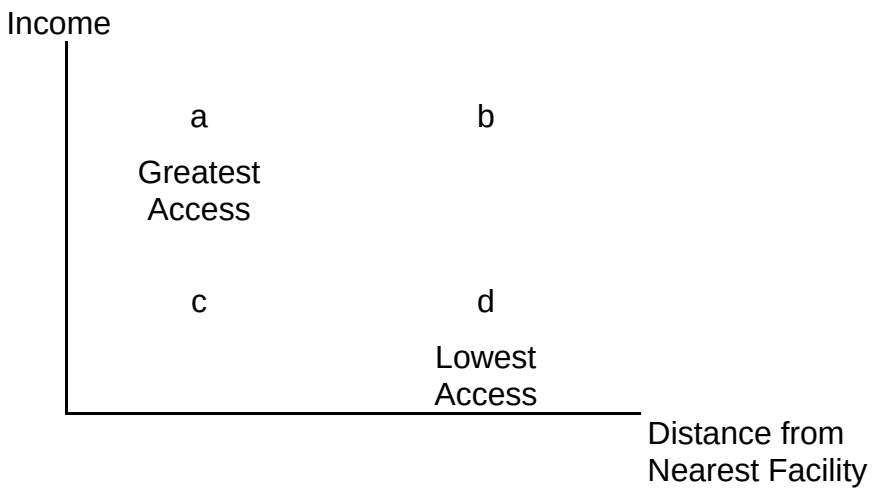

Exhibit 2-1 Access to Health Services as a Function of Income and Distance from the Nearest Health Care Facility

services because of closer proximity to facilities and greater availability of transportation. Such geographic disparities are usually reinforced by differences in the quality of care available in urban and rural areas and by the fact that urban dwellers have higher average incomes than rural dwellers. Similarly, if a charge for health care is introduced and no provision is made to exempt indigents from payment, differentials in access between the poor and non-poor may be reinforced. (If fees lead to quality improvements, which in turn eliminate the need to visit multiple providers, patients may actually save money and have increased financial access to health services. See Litvack, 1992 for an empirical example of this scenario in Cameroon.)

Factors other than financial and physical ones, such as waiting time, insufficient knowledge of the benefits of health care (often due to low education), sex, and age can act as significant barriers to access. Barriers to access impinge on different population groups and require different policy tools. As with other goods (e.g., food), access of females, the very young, and the elderly may be restricted by the household (Deaton, 1988; International Center for Research on Women, 1989), and governments sometimes choose to subsidize health services needed by these groups.

Given that financial factors are important determinants of access to health care, there are at least six reasons that governments might want to increase access of the poor by providing health care that is free of charge or subsidized:

- Health and economic status are inversely related; the poorer someone is, the more services he or she is likely to need according to medical criteria (Feachem et al., 1992).
- Governments often consider some types of health care to be merit goods, i.e., goods of which everyone should have at least a minimum amount or to which everyone should have minimal access. Emergency care is typically considered a merit good.
- The poor's demand for health care may not adequately reflect the value they place on health care because of market failures; liquidity constraints and imperfect markets for insurance

prevent the poor from consuming even highly valued health services (Ellis, 1993).

- The poor's demand for health care does not adequately reflect the value of health care because of ignorance about the benefits of health care.

- The private valuation of certain types of health care is less than the full social value of health care; certain types of care have public good qualities because of the positive externalities associated with their consumption. For example, treating a person with a communicable illness increases overall social welfare by preventing others from contracting the illness. The same holds for prevention of communicable diseases or disabling diseases which impose on society costs of supporting the disabled.

- By increasing human capital, health care is believed to lead to income gains for the poor and productivity gains for society as a whole. Increasing the human capital of the poor results in absolute poverty reduction and narrows welfare disparities between the poor and the rich.

2.4 EQUITY[2]

The literature on health services and health service financing mentions equity frequently, though equity is not always defined explicitly. Because the term is used differently by different authors, the debate over the equitability of cost recovery is somewhat confused. The *MIT Dictionary of Modern Economics* (Pearce, ed., 1992) defines equity as "fairness or justice" and goes on to caution:

> Equity should not be confused with equality since one need not imply the other. For example, equity may or may not be held to require equality of incomes—depending upon one's view or the nature, sources and implications of income differences.

Defining equity precisely runs into the same difficulties as defining "intelligence;" defining both concepts necessarily entails making value judgements, and just as there are many dimensions to intelligence, there are many dimensions of equity, particularly in the context of the health sector.

> [T]here cannot be a single measure of how equitable a health care system is: the same system may be quite fair by some indicators, and grossly inequitable according to others. It is no more possible to judge a country's health services as to equity by just one number than it is to summarize the population's health status in one indicator (Musgrove, 1986).

After discussing some important dimensions of equity, we shall attempt to formulate a definition of equity appropriate to guide and evaluate policies of targeting government health resources under cost recovery. The various dimensions of equity can be seen by exploring three questions: What is to be distributed fairly? Across which groups is it to be distributed fairly? What is a fair distribution? In exploring various answers reflecting different value judgements, we raise more issues than we can resolve. Although the three questions overlap, we address each one in turn.

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[2] For detailed discussions of equity in the health sector, see Menzel (1983) and Musgrove (1986). Much has been written about equity in general. For a small sampling of this literature, see Rawls (1971), Atkinson and Stiglitz (1980), Streeten (1981a), and Sen (1992).

2.4.1 What Is To Be Distributed?

There are many possible answers to the question of what is to be distributed equitably. Is it consumption (i.e., utilization) of health care (and if so, what types of care);[3] the opportunity to consume health care (i.e., general access); financial access to health care (a subset of general access); health care expenditures; health care inputs; government health care expenditures, inputs, or subsidies; or actual health status? Exhibit 2-2 illustrates possible answers. Achieving fair distribution of each consideration implies different outcomes and costs. This is illustrated most easily when equal per capita distribution (either adjusted for health status, age, etc., or not) is deemed to be fair, though later we will take up alternative definitions of fairness.

First we consider the goals of equal distribution of consumption and equal distribution of access. The difference between them can be thought of as the difference between equality of condition and equality of opportunity. As discussed earlier, equal consumption or equal consumption for given health status might not be considered fair since some people prefer to consume less than others even when access is the same for everyone. Furthermore, "equal utilization for equal need has greater resource implications than equal financial access for equal need" (Vogel, 1988). Whether consumption or access is to be distributed equally, we must specify whether everyone is to receive or have access to care of equal quality. If all care is equivalent from a narrowly medical perspective, are different levels of comfort and amenities which do not influence health status to be permitted? Another important issue is whether the same standard of distribution should apply to all types of care. In general, appeals for more universal access to health care implicitly or explicitly place greater emphasis on preventive care and emergency care than on non-emergency curative care. Finally, if the equity goal is not to equalize per capita consumption or access, but rather to equalize per capita expenditures or inputs, consumption and access will be unequal because services are more expensive to deliver to certain groups (e.g., remote rural populations vs. urban populations).

[3] In empirical analysis, defining and measuring the quantity of consumption of health care in units is notoriously problematic given that health care is a heterogenous good, all the more so because of wide variations in patient perception of and response to treatments and because of changing medical technology. The quantity of care is often measured in monetary units; the flaw of this approach, however, is that monetary units reflect both price (or cost) and quantity. For a discussion of medical care units, see Feldstein (1988).

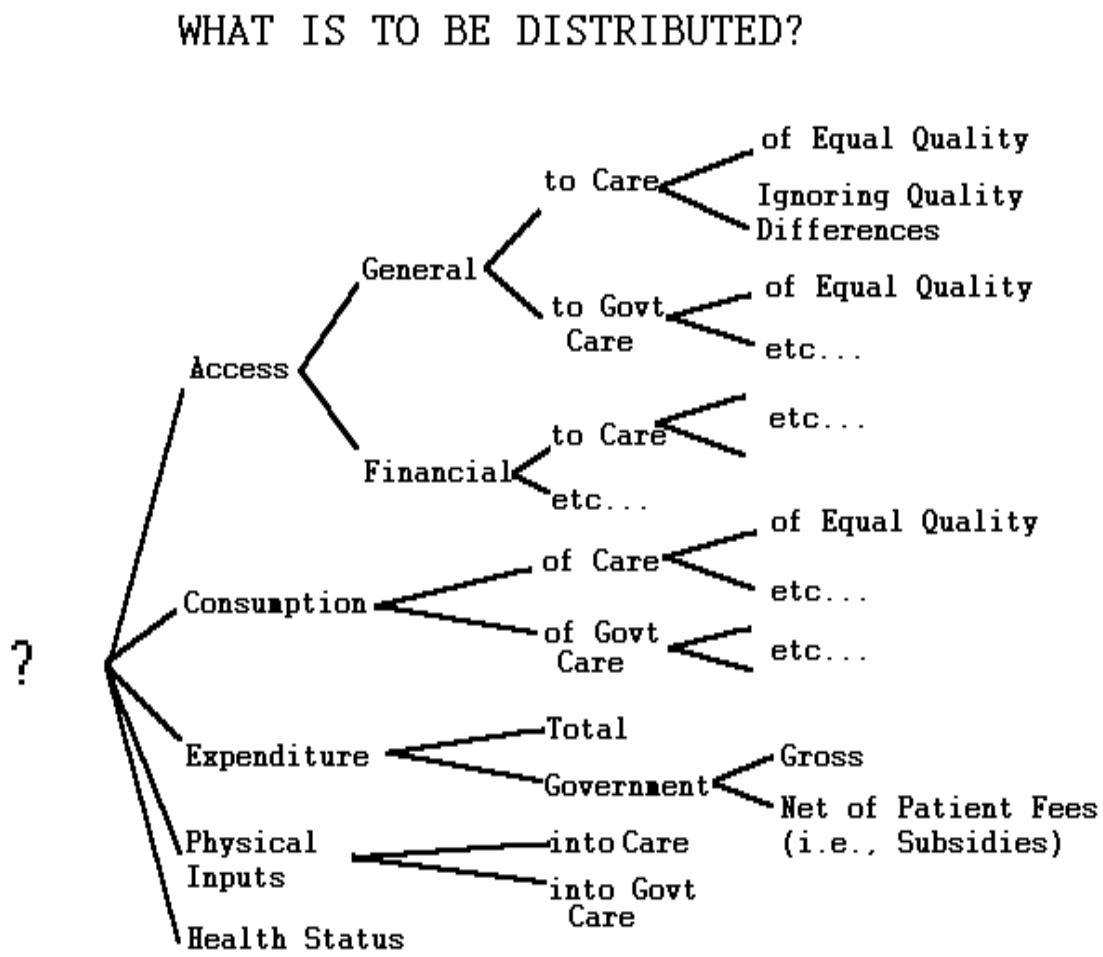

Exhibit 2-2 Decision Tree for "What Is To Be Distributed?"

Whether consumption, access, expenditures, or inputs is being considered, we need to stipulate whether to include both the private and government sectors, recognizing that the government has limited control over the private sector. Although the government is the dominant provider and financier of health services in most developing countries, it may be necessary to take the private sector into account as a source of inequality. For example, in the presence of private providers whose services only some people can afford, pursuing goals such as equal per capita government expenditure on health care or equal consumption of government-provided care will result in inequalities since people with higher incomes will be able to augment their allotment of government resources with private expenditures. In the absence of a private market, if the government charges sliding-scale fees such that everyone receives equal subsidies (government expenditure net of fees), or if the government gives everyone vouchers of equal value while charging a flat fee, high-income people will purchase more care than low-income people.[4] If the goal, however, is to equalize overall expenditures inclusive of private expenditures, the imperative facing the government is to allocate resources in inverse proportion to private expenditures (which are highly correlated with income)—although reaching absolute equality may be prohibitively expensive relative to the government's health budget.

Similarly, if the equity goal is equal access or consumption, it matters whether access or consumption is to be of health care in general or of government-provided health care only. While either objective might involve sliding-scale fees for government care, the fee differentials would have to be more pronounced and the government's total subsidy bill greater to achieve overall equality than to achieve equality in the government-sector only, especially if government care is an inferior good (i.e., a good that is consumed less as income rises). Achieving equality of overall per capita consumption of care is less costly to the government than achieving equality of overall per capita health expenditures, assuming that private costs exceed government costs. In the presence of a private market, achieving equal consumption of care of equal quality is difficult to realize, both because of heterogeneous quality within the private sector and the high cost of raising the quality of government-provided care up to the general level in the private sector (assuming that quality is higher in the private than in the public sector).

Finally, the government may not choose the objective of equal consumption, access, expenditures, or inputs, but instead aim to equalize health status. Pursuing equality of health status requires actions outside the health system's control since there are many important determinants of health status other than consumption of health care.[5] Mooney et al. note that it "may well be too expensive.... It may only be

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[4] Although both the equal subsidies/sliding-scale fee and the equal vouchers policies raise consumption for everyone, they have somewhat different distributional effects. Compared to a situation in which marginal cost (MC) is constant and price (P) equals MC, and assuming that price P = MC under the voucher policy, the voucher policy raises everyone's consumption by more than the equal subsidies/sliding-scale fee policy because some care is made available at zero marginal fee. The absolute gap between consumption of health services by the rich and poor, however, is unaffected by vouchers and only partially closed by the equal subsidies/sliding-scale fees policy.

[5] This raises the question of what the scope of health sector equity policy should be. Should the goal be to lessen inequalities in the health sector, or to use the health system to lessen welfare inequalities in society at large? Although there is considerable overlap between the two approaches--lessening inequalities in the health sector contributes towards lessening welfare inequalities--the latter requires that the health system directly compensate for inequalities originating outside itself. If the government wishes to reduce inequalities in society at large, and if on the margin the health sector is more efficient than other sectors at promoting equity, resources should be reallocated from other sectors to the health sector.

possible to achieve such a goal at very low and possibly unacceptable levels of health" (1992). In fact, if taken literally, equal health status suggests taking active measures to reduce the health of people who are healthier than average. Of course, the notion of equal health status could be embodied by other, less severe definitions of equity such as equal health across income groups controlling for factors such as age and sex, so that health status would not depend on income.

2.4.2 Across Which Groups Is It To Be Distributed?

This leads us to the second question: across which groups is the good in question to be distributed fairly? Again, there are many possible answers, and this section will not discuss all of them. The notion of equity implies that a group be treated fairly relative to groups with different characteristics.[6] An important consideration is how to classify groups—by income, educational level, age, sex, geographic location, health status, or some combination thereof. It is easy to think of situations in which distribution is equitable along some of these dimensions but not others (Musgrove, 1986). For example, even if access is equitable across income groups, within income groups, women, children, or the elderly may receive unfair shares of care. If strict equality is the standard of fairness, housecalls for all forms of care, even cardiac surgery, would be needed to achieve fairness vis à vis distance.

Equity is often defined as equal treatment of all individuals, regardless of income, age, sex, etc., with equal health status. But what about vertical equity between people with different health status? The dilemma between giving resources to a sick person who has the potential to improve greatly or to a much sicker person who is likely to benefit only slightly is the dilemma between deriving maximum total benefit from available resources and equalizing welfare. Casual empiricism suggests that compared to people with little education, people with high education improve more from a given amount of health care because they are better equipped to read and comply with instructions and are more likely to live in hygienic conditions. It might be argued (cruelly) that it is not fair to "waste" any resources on people with terminal cancer or AIDS. (A more morally defensible stance is that, until such time as effective treatments are available at reasonable cost, terminally ill patients should receive qualitatively different health care than patients with non-terminal illness, specifically, palliative care.) It should be noted that any particular policy measure is not able to affect distribution across all groups, and multiple tools are required to affect distribution across multiple groupings.

[6] Fair treatment of people with different characteristics or in different circumstances is called vertical equity, whereas fair treatment of similar people is called horizontal equity.

2.4.3 What Is A Fair Distribution?

We now address the third question of what constitutes a fair distribution. We consider four principles of distribution: (a) egalitarian, (b) basic needs, (c) Rawlsian, and (d) utilitarian. Equality of treatment is paramount to the strict egalitarian conception of equity, and how people fare relative to others is more important than how they fare absolutely. Until now, most of our examples of equity goals have assumed that distribution across groups or individuals should be equal. In the context of health care, the goal of equality usually means equal access or equal consumption for a given health status—which, again, does not address the question of vertical equity between people with different health status. An issue that is often sidestepped when strict equality is advocated is that it may be achievable only at very low levels of consumption, access, health, etc.; using a strict egalitarian definition of equity, a health system which made very low quality health services available to everyone would be preferable to a health system which made health services of modest quality available to everyone while also making better quality services available to only some people. Indeed, much of the confusion in discussions of equity arises from a failure to distinguish between how members of society fare absolutely vs. how they fare relative to others, particularly the well-to-do.

Paul Streeten (1981b), in presenting his concept of "basic needs," focuses on the absolute welfare level of the very poor. He makes a compelling case for securing a minimum "basic needs" package of health care, nutrition, education, etc. for everyone before trying to eradicate strict inequalities. (Of course, in the process of improving the lot of those who lack the minimum requirements, it is possible—though not given—that inequalities will be reduced.) According to this "safety net" approach, a minimally acceptable package of health services is a merit good and the primary equity objective is to secure access to this package of health services for as many people as possible, including the poor, rather than to ensure that everyone has exactly the same access to exactly the same services. The minimum package is to vary from country to country depending on living standards, government resources, and local needs. Common criticisms of this approach are that the minimum must be defined arbitrarily (the whole process of defining fairness is by definition arbitrary, however), and that it ignores the welfare impact of people's relative conditions.[7]

In *A Theory of Justice* (1971), John Rawls proposes another idea of fair distribution. The "difference principle," also called the "maxi-min criterion," states that departures from strict equality should be permitted only if they improve the condition of the worst-off member of society. According to this principle, even very wide inequalities can be justified by slightly higher absolute positions of the worst-off individual. In the context of the health sector, this standard implies that the best distribution of health care resources is that which maximizes the health status of the person with the lowest health status (or the group with the lowest health status, since at most points in time, the sickest member of society is about to die despite medical intervention), or alternatively, that distribution which

[7] The major criticism of the basic needs approach has to do with means rather than objectives. Many argue that the fastest, most efficient way to secure basic needs for all is to encourage general economic growth rather than to target services to the poor.

maximizes the amount of health care, access, etc. going to the person or group who receives the least.

The fourth theory of distribution, a classical utilitarian theory as put forth by Jermey Bentham in the late 18th century, maintains that goods be distributed to maximize the total sum of utility, regardless of how utility is distributed. If we make the simplifying assumption that health status translates roughly into utility, classical utilitarian theory suggests that health resources should be distributed to maximize the benefits of medical intervention as measured by some indicator such as healthy days of life saved. Under such a distribution, the elderly, people with terminal illness, and people with little education would receive fewer resources than under egalitarian or Rawlsian distributions.

All four principles are in agreement that any policy that both makes everyone better off (therefore being a Pareto improvement) and leads to more equal distribution is desirable (i.e., distribution 1 is preferred to distribution 4 in Exhibit 2-3), but conflict between the principles arises when there is a tradeoff between equality and absolute levels of health care (consumption, access, health status, etc.) of at least some members of society. In other words, there are differences of opinion about how much inequality can be tolerated in order to raise, say, consumption of the poorest or the average person. (Conversely, there are different views about how much decline in consumption can be tolerated in the name of greater equality.)[8] The differing implications of the four principles are illustrated by considering how various distributions are ranked according to each principle. Exhibit 2-3 is a matrix illustrating four different distributions of health care. The columns of the matrix indicate whether a strictly equal distribution prevails, and the rows indicate whether all members of society have levels of care (access, etc.) above an absolute level called **m** for minimum acceptable level. Each of the four cells of the matrix contains a numbered distribution, the vertical axis showing the level of care, and the horizontal axis showing the distribution of care moving right from the origin from the person who has the least to the person who has the most.

The four principles rank the distributions in Exhibit 2-3 as follows (the principles are indifferent between distributions within curly braces unless otherwise specified):

- The *Egalitarian* Principle: {1, 3} > {2, 4}—or, breaking ties by looking at absolute levels, 1 > 3 > 2 > 4;
- The *Basic Needs* Principle: {1, 2} > 4 > 3;
- The *Rawlsian* Principle: {1 or 2} > {3 or 4}. The preferred distribution within each pair of braces is whichever one gives more to the person with the least, and
- The *Utilitarian* Principle: 2 > {1 or 4} > 3. Between 1 and 4, the preferred distribution is that which yields the greatest total utility.

[8] In a dynamic framework, a related issue is how much present inequality can be tolerated if it leads to higher levels of care for the poorest, eventual equality, or both.

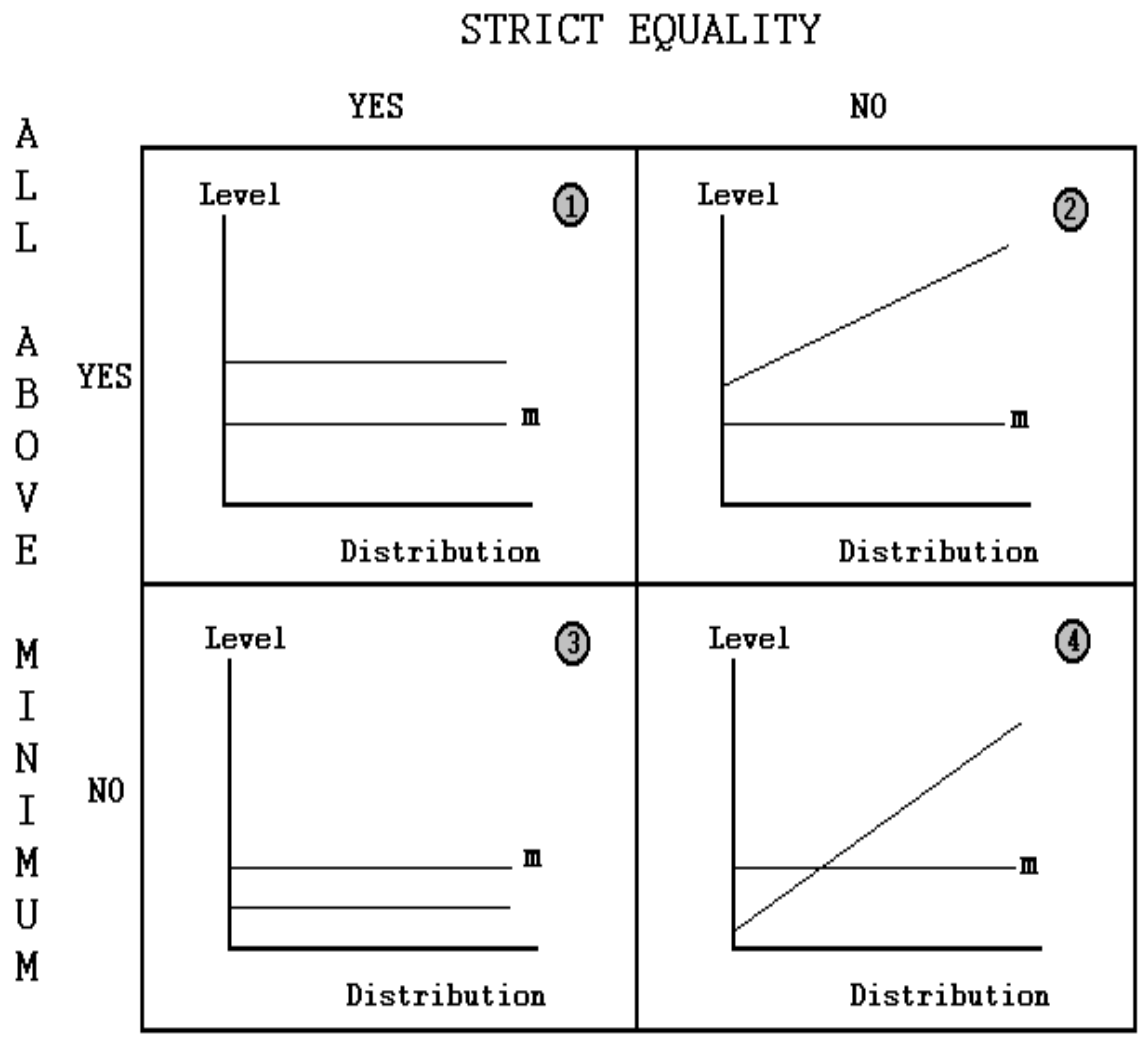

Exhibit 2-3 Equality/Minimum Requirements Matrix of Distributions of Health Care

We can conceive of a fifth principle of distribution in which both absolute and relative access count, but securing a minimum level for everyone takes priority over equality. The social indifference curves in Exhibit 2-4 reflect this hybrid between the egalitarian, basic needs, and Rawlsian principles.(The minimally acceptable level of care, **m**, can be thought of as that level going to the poorest on the highest attainable social indifference curve.) Musgrove (1986) expresses the same prioritization when he states, "The intention is to assure good health for all, and as far as possible, equally good health," and "To economists, however, equity [means] that the distribution of health care expenditure should be less unequal than the distribution of income, or that there should be a net subsidy (expenditure minus tax contributions) to population groups with low incomes, and a net contribution by groups with high incomes."

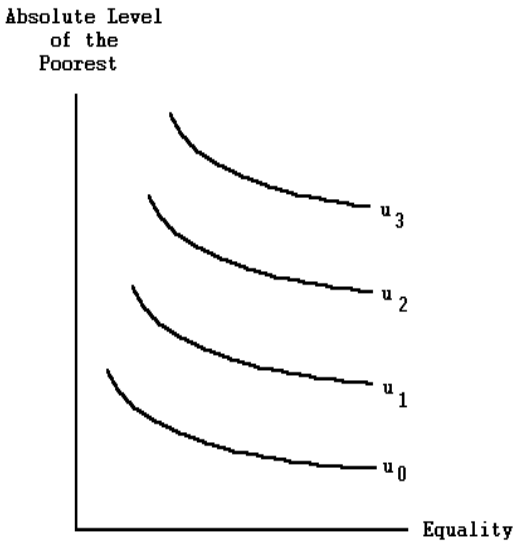

Exhibit 2-4 Social Indifference Curves between Absolute Level of the Poorest and Equality

2.4.4 Defining Equity for Means Testing

As evidenced by the different rankings of distributions according to various principles, the question of fair distribution is no more straightforward than the question of what is to be distributed or across which groups it is to be distributed. The many permutations of answers to these three questions compel us to be as precise as possible in formulating a definition of equity that can be applied to the concrete tasks of designing and implementing targeting programs. First, a comment is in order about the role means testing plays in promoting equity (however defined). As a tool for targeting benefits to specific individuals or households, means testing can address certain dimensions of inequity better than others. For example, means testing is better suited to addressing inequity on the basis of economic barriers than on the basis of geographic barriers, and means testing is ill-equipped to address variations in the quality of services in different locations. In short, means testing is a tool for promoting equity by adjusting price barriers, and even the ideal means test will not remove all dimensions of inequity. Policy tools other than means testing, e.g., outreach to distant populations, changing budgetary allocations by region or by type of service, and abolition of exemptions for civil servants, are better suited to reducing inequities arising from non-price barriers to access.

Despite the complexities of defining equity in the health sector and the impossibility of reaching full consensus on such a definition, there is general agreement on many of the issues raised. Here we propose the following guiding principles, which together define health sector equity goals to be pursued using means testing:

- In answer to the question, "what is to be distributed fairly?", equity policy should focus on access to a basic package of government-provided or private health care of minimally acceptable medical quality and emphasizing emergency and preventive services. This means that access to government-provided care should be biased towards those who do not have access to private care.

- In answer to the question, "across which groups is it to be distributed fairly?", means testing should be used to promote equal financial access across income groups, and increase the likelihood that access to health services does not depend on income, i.e., that in Exhibit 2-1, the people of quadrants **a** and **c** and of quadrants **b** and **d** have equal access. Although inequalities in access arise out of factors other than income, means testing focuses on inequalities arising from different abilities to pay.

- In answer to the question, "what is a fair distribution?," both absolute and relative access count, but securing access to the basic package of health care for everyone regardless of economic status takes priority over ensuring that everyone has equal access to exactly the same amount and quality of health care.

These principles are embodied by the following statement: means testing should be used to remove or reduce barriers to access to basic health services arising from inability to pay health fees.

2.5 HOW DO THE POOR FARE UNDER COST RECOVERY?

The debate over cost recovery hinges on questions of both efficiency and equity. We now turn our attention to the question of how the efficiency and equity consequences of cost recovery affect the poor. A central question in the debate over cost recovery is how the poor fare under cost recovery. Much has been written on this question (Gertler and van der Gaag, 1990; Griffin, 1988; World Bank, 1987; Zuckerman, 1989). Reasons that the poor might become absolutely or relatively worse off after the introduction of cost recovery in the absence of effective means testing include:

- The effect of price on demand: user fees, in the absence of quality improvements, restrict health service utilization rates of all populations, but especially the poor (*see following point*). (If, however, the revenues generated by user fees are used to improve services, the quality improvement effect offsets the price effect, and utilization could rise for at least some groups in the population.)

- Higher price elasticity of demand of the poor: the poor seem to be more sensitive than the non-poor to increases in the price of health care. Similarly, fees appear to reduce utilization rates of children more than of adults (Gertler and van der Gaag, 1990).

- Selective application of cost recovery charges: the design or implementation of a cost recovery program may be biased against the poor. Typically, civil servants and members of the military are exempt from paying user fees for government-provided services despite being better off economically than the general population. In Niger, friends and relatives of hospital personnel were found to receive care free of charge despite being

better off than paying patients (Weaver et al., 1990a; Vogel, 1988), as in Kenya, India, Egypt, and elsewhere (Ellis, 1993).

On the other hand, even when services are nominally free of charge, the poor often suffer from a lack of access to health services due to barriers other than the nominal price of government health care (e.g., travel costs). There are reasons to believe that, compared to the status quo, cost recovery might benefit the poor and promote equity:

- Biases in non-price rationing: "In most countries, a low average subsidy leads inevitably to rationing—there is simply not enough for everyone" (World Bank, 1987). In practice, people with greater education or connections within the civil service are more likely to find ways of jumping queues. Increased reliance on price rationing (i.e., fee collection) as a basis for distribution could give the poor greater opportunity to benefit from government health services.

- Improvement of access in rural areas: In most countries, a disproportionate share of both government and private health resources goes to urban areas, where incomes and living standards are generally higher than in rural areas (Vogel, 1988; World Bank, 1987). Cost recovery revenues could be used to expand services into rural areas or improve rural services.

- Improvement of quality of services: Cost recovery revenues can be used to improve quality of care, for example, by improving drug stocks at government facilities. All patients, but especially poor patients, suffer when clinics run out of drugs because they must either go without medication or spend additional time and money travelling to other providers to purchase drugs. Quality improvements have been shown to more than offset price effects in some cost recovery programs, resulting in net increases in utilization of health services (Litvack, 1992; Sierra Leone MOH/UNICEF, 1989; Renzi, 1990; Bitran, 1989; Tilney et al., 1992).

- Higher time elasticity of demand for the poor: As well as being more sensitive to the money price of health care compared to the non-poor, the poor seem to be more sensitive to increases in the time-price of care (Gertler and van der Gaag, 1990),[9] suggesting that any policy that reduces the travel or waiting time of care will raise utilization rates of the poor more than the non-poor. Using cost recovery revenues to expand services in poor areas or maintain better drug stocks will benefit the poor both absolutely and relative to the non-poor.

- Greater scope for equality: Cost recovery introduces the possibility of price discrimination where none existed before, increasing the potential for greater equality. It is possible that people who can afford to pay for health care will do so while people who cannot afford to pay are granted

  partial or total exemptions (funded either out of general revenues or cross-subsidies from paying patients), thus reducing differentials in access and overall welfare. Such a situation is

[9] Although the opportunity cost of time is higher for the non-poor than for the poor, the marginal utility of income appears to be higher for the poor, making the poor more reluctant to forgo work to seek medical treatment.

sometimes observed in the private sector. "Ironically, in some cases, the poor may be better protected in the private sector. A sliding scale of fees, with a low charge or even none for the poor, is common on an informal basis at missions and the village level, where any household's ability to pay is widely known" (World Bank, 1987). This argument is further strengthened in countries where the poor bear a disproportionate burden of health care financing through regressive taxation.

Not only is it important to know which predominate, the detrimental or the beneficial effects of cost recovery on the poor, but how cost recovery programs can be designed to decrease the former and increase the latter. An important way that the poor can be protected from potentially negative effects of cost recovery is to target government health care resources to the poor.

2.6 TARGETING

2.6.1 General Concepts of Targeting

Targeting is the process of directing resources towards specific groups of people to achieve a certain policy objective. Often the targeted group is the poor, though people may be targeted on the basis of age, physical disability, or other identifiable characteristics. Examples of targeted programs in the U.S. include food stamps for low-income households and need-based college scholarships. Much has been written about possible uses of targeting in developing countries to alleviate poverty under structural adjustment (Demery and Addison, 1987; Glewwe and van der Gaag, 1988; Kanbur and Besley, 1988; Ravallion and Chao, 1989; Glewwe and de Tray, 1989), but relatively little has been written about targeting in developing country health sectors. In the context of health care cost recovery, targeting refers to using government resources to finance the provision of health care services to the poor, rather than having them pay out of their own pockets. The poor are partially or totally exempt from paying user fees or health taxes to increase the likelihood of equitable use of health services.

In practice, most health sectors, rather than actively targeting the poor, use a system of general price subsidies for services, resulting in large subsidies to the non-poor.[10] Exhibits 2-5 and 2-6 illustrate differences in equity effects and government expenditure between using a general price subsidy and targeting benefits to the poor. Both exhibits show the same demand curve **D**, with the horizontal axis representing the number of units of health care **Q**, and the vertical axis representing the price per unit of health care **P**. Marginal cost **MC** is the same in both cases and assumed to be constant. For simplicity of analysis, let us assume that the exhibits apply to a population of people with a given illness and therefore a given health status, and further, that medical criteria require that everyone receive one and only one unit of health care. (For example, consider guinea worm or malaria.) People know what treatment is required and each person wants one unit of treatment at or below his or her reservation price (willingness to pay). We assume identical tastes so that the demand curve slopes downward only because people have different incomes and, hence, different reservation prices for

[10] Strictly speaking, to the extent that the subsidized good or service is inferior and thus consumed disproportionately by the poor, a general price subsidy is a form of targeting (Timmer et al., 1983). Subsidization of inferior goods is an example of self-targeting, one type of characteristic targeting.

treatment and they live different distances from health facilities. For purposes of this analysis, we define as poor anyone whose income is sufficiently low that he or she does not purchase health care when price equals marginal cost (i.e., when **P** = **P***). We assume that $\mathbf{Q_f}$, the number of units demanded at **P** = 0, is less than the total number of people experiencing illness because even at zero price, some ill people are deterred from seeking care, say, by travel costs. Thus, **Q*** non-poor people and ($\mathbf{Q_f}$ - **Q***) plus an unspecified number of poor people experience illness.

Exhibit 2-5 shows that under a general subsidy with price equal to $\mathbf{P_s}$, the subsidy per unit of care is equal to **MC** - $\mathbf{P_s}$. Government's total subsidy expenditure for providing health care to all who demand it at the subsidized price $\mathbf{P_s}$ is equal to total cost minus total revenue, the amount represented by the two shaded areas. The darker shaded area represents the amount of subsidy going to the non-poor while the lighter area represents the amount of subsidy going to the poor. Since at least "**x**" number of poor people ($\mathbf{Q_f}$ - $\mathbf{Q_s}$) do not demand health care even at the subsidized price $\mathbf{P_s}$, the general price subsidy fails to secure access for everyone with this illness (i.e., it does not achieve "full coverage" since benefits do not reach everyone who needs care).

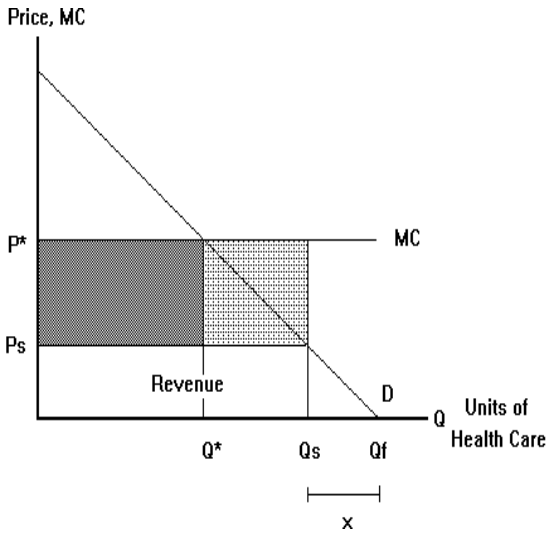

Exhibit 2-5 General Price Subsidy

Exhibit 2-6 shows the case in which health services are targeted to the poor. The price charged to the non-poor is **P*** (**MC**) but the poor are offered services free of charge. The targeted subsidy goes only to the poor and achieves higher coverage of health services than the general price subsidy since the quantity of services consumed is now $\mathbf{Q_f}$ rather than $\mathbf{Q_s}$. Since the government must pay more to subsidize the poor, but it no longer subsidizes the non-poor, the total government subsidy expenditure when there is targeting (Exhibit 2-6) could be higher or lower than when there is a general price subsidy (Exhibit 2-5). Whether the total government subsidy is higher under a general price subsidy or a targeted subsidy depends on how deep the general subsidy is (**MC** - $\mathbf{P_s}$) and the price elasticity of demand. (The less elastic demand is, the more likely that the general price subsidy costs more than the targeted subsidy. Compared to a situation in which demand is relatively elastic, when demand is inelastic, a reduction in price does not significantly increase coverage and new customers have markedly lower willingness to pay than previous customers; the lost revenues due to a price cut are not fully offset by an increase in revenues coming from new customers.) Compared to the general subsidy, the targeted subsidy performs well according to both equity objectives of improving the poor's absolute and relative status.

Exhibit 2-7 illustrates a variation on the targeted subsidy of Exhibit 2-6. Again, the price to the non-poor is $\mathbf{P^*}$ (**MC**). In this case, benefits are targeted but a sliding-scale fee exemption (i.e., price discrimination) is used to collect partial payment from the poor, thus reducing the total government subsidy while still securing coverage of $\mathbf{Q_f}$. As in Exhibit 2-6, non-poor people pay **MC** and receive no subsidy, but now each of the $\mathbf{Q_f}$ - $\mathbf{Q^*}$ poor people pays his or her reservation price, thus receiving a partial subsidy rather than a subsidy of **MC**. The shaded area shows the government's total subsidy expenditure, which is less than that in Exhibit 2-6.

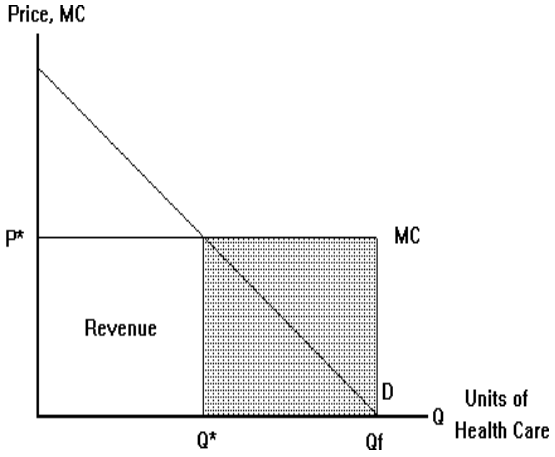

Exhibit 2-6 Targeted Subsidy

Targeting (Exhibit 2-6 or 2-7) may be preferred to general price subsidies (Exhibit 2-5) for two reasons: more resources can be made available to those in need, and the government can conserve its resources for other purposes such as debt reduction. By reducing benefits to the general population, targeting may allow the government to increase transfers to the target population while maintaining or cutting government spending, thus delivering resources to the poor much more efficiently than through general subsidies. Another reason targeting may be preferred to general price subsidies is that it does a better job of reducing inequalities between the poor and the non-poor since the non-poor receive few or no benefits free of charge when benefits are targeted. The benefits of targeting must be weighed against the administrative costs. For example, compared to a general price subsidy, targeting subsidies to the poor may prove cost-effective, but the cost of administering price discrimination could easily outweigh the savings on subsidy expenditures. We take up the issue of targeting costs again later.

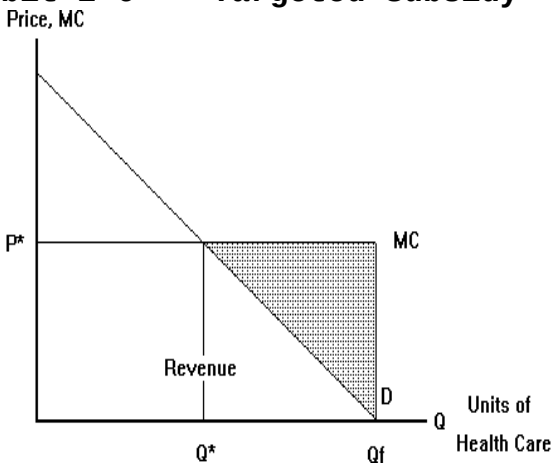

Exhibit 2-7 Targeted Subsidy with Sliding-Scale Fee Schedule

2.6.2 Types of Targeting[11]

Glewwe and van der Gaag (1988) distinguish between two types of targeting: characteristic and direct. Characteristic targeting provides benefits to those people who have the general characteristics of the target population, but does not explicitly identify specific individuals or households as poor or non-poor. For example, benefits may be channeled to everyone living in a particular area known to be populated largely by poor people (geographic targeting);[12] the government may conduct free or subsidized child-feeding programs if children are known to be at risk for poverty or may offer benefits to members of a poor ethnic group (demographic targeting by age or ethnicity); children exhibiting signs of malnutrition may be offered free or subsidized nutritional supplements, pregnant women may be offered free prenatal care, people with tuberculosis may be offered free medicine (all three, targeting by condition); services and commodities known to be bought or sold disproportionately by the poor—i.e., inferior goods—may be subsidized (self-targeting by product, also called self-selection). There are even examples of services being targeted to members of a specific occupational group, e.g., a World Bank primary care and family planning program for poor Ghanaian women engaged in construction (Subbarao, 1993). A survey of Latin American nutritional programs found that:

> [o]f the 104 programs, 54 are intended to cover infants aged 5 or younger, 31 involve pregnant or lactating women, 30 are for school children, 23 focus specifically on malnourished children, and 28 are addressed to entire families. In some cases food is regularly distributed to other classes of beneficiaries, such as the elderly or handicapped, or as a payment in kind to volunteers, day-care providers, or other collaborating personnel (Musgrove, 1993).

Note that the lines between various methods of channelling resources to the poor sometimes get blurred; subsidizing a good in a geographic region known to be populated largely by the poor and subsidizing an inferior good are examples of both general price subsidy and characteristic targeting, the characteristics used to target the poor being location in the first case and propensity to consume a particular good in the second case.

Subsidization of inferior goods is an example of self-targeting or targeting by self-selection because "[i]f only the poor choose to [consume] the subsidized inferior [good], only the poor capture the subsidy" (Timmer et al., 1983). Self-selection can be on the basis of the product, level of service (e.g., health services with different amenities), or type of facility or outlet which is subsidized; deterrents such as long waiting time or stigma attached to being a beneficiary can also be seen as *de facto* targeting mechanisms which result in self-selection (Levine et al., 1992). Two examples of targeting through self-selection taken from Indonesia's structural adjustment program are concessional interest rates on low-cost housing units and aggressive subsidization of immunization of children and primary education (Griffin

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[11] Various authors (Grosh, 1992a; Levine et al., 1992; and Glewwe and van der Gaag, 1988) use somewhat different classification schemes for targeting mechanisms than the one presented here.

[12] Datt and Ravallion (forthcoming) point out that redistribution from less poor to poorer regions does not guarantee redistribution from the less poor to the poor *within* regions.

et al., 1992). Food-for-work schemes are also examples of programs using self-selection to identify the unemployed. Self-selection can be used to price discriminate; for example, hospital patients at Niamey National Hospital, Niger are offered a choice of clinically equivalent levels of care with the higher-priced levels including more amenities (Weaver et al., 1990a).

In contrast to characteristic targeting, direct targeting provides benefits only to particular individuals or households identified as poor. Determining who does and does not qualify as poor requires information on the economic status of all potentially eligible beneficiaries. Levine et al. (1992) differentiate between two types of direct targeting: income-based and proxy-based. Under income-based direct targeting, all individuals or households identified as having income below a certain threshold are eligible for certain benefits. Proxy-based direct targeting determines an individual's or household's eligibility on the basis of criteria other than income. Proxy-based direct targeting is similar to characteristic targeting insofar as the criteria for eligibility are determined by census or survey data correlating characteristics other than income to ability to pay. The difference between proxy-based direct targeting and characteristic targeting is that only in proxy-based targeting are individuals or households specifically identified as eligible or non-eligible.

2.6.3 Type I and Type II Errors

Ideally, targeting would precisely direct benefits to the poor, neither missing any of the poor nor allowing any benefits to go to the non-poor. As mentioned, a targeted program which reaches all of the poor achieves full coverage,[13] while a program which manages to prevent any benefits from going to the non-poor avoids any leakage. A program has poor coverage if it classifies as "non-poor" someone who is truly poor, thus denying benefits to someone who deserves or requires them. We call this type of inaccuracy a Type I error. In the health financing context, a Type I error means denying access of certain populations to needed health care services. Type I error could arise from an overly-stringent screening mechanism, from potential beneficiaries' reluctance to be identified as indigent, or from lack of knowledge about the program or the value of program benefits. Reducing Type I errors promotes equity by improving both the poor's absolute and relative welfare.

A Type II error is the other type of inaccuracy that occurs in targeted programs, namely classifying as poor someone who is not, thus granting benefits to someone who does not require them. In the health financing context, a Type II error means providing services free of charge to someone who has the ability to pay, thus using scarce resources in an inappropriate manner. Timmer et al. (1983) state that "[s]uch leakages tend to be a function of the size of the program benefits. Small benefits provide little incentive to cheat or to participate contrary to the intent or regulations of the program."[14] Exhibit 2-8 shows the four possible

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[13] Note that the term "coverage" here refers to the proportion of the targeted population benefiting from a targeted program rather than the usual public health definition of coverage, namely the proportion of the population living within a certain distance of a health facility, typically five kilometers.

[14] Type I errors are sometimes called errors of exclusion, and Type II errors are sometimes called errors of inclusion (Grosh, 1992a).

outcomes of targeting.[15] People who are correctly classified (i.e., appropriately given or denied benefits) fall into the two shaded areas. The poor who are denied benefits represent Type I error, whereas the non-poor who receive benefits represent Type II error.

2.6.4 Accuracy of Targeting

The accuracy of targeting can be calculated in terms of Type I and Type II errors. Both types of error can be expressed either as the number of misclassified people or as amounts of money over or underspent. The extent of Type I error or undercoverage is measured by dividing the number of poor wrongly excluded from receiving benefits, or the value of benefits wrongly denied (bottom left quadrant) by the total number of poor, or the amount of money required to provide benefits to all of the poor (top and bottom left quadrants). "The complement of undercoverage is coverage, that is the percent of those who ought to be served who are served. This is sometimes called the participation rate" (Grosh, 1992a). Type II error or leakage is measured by dividing the number of non-poor beneficiaries, or the value of benefits wrongly awarded to the non-poor (upper right quadrant), by the total number of beneficiaries, or the total value of benefits (upper left and right quadrants).

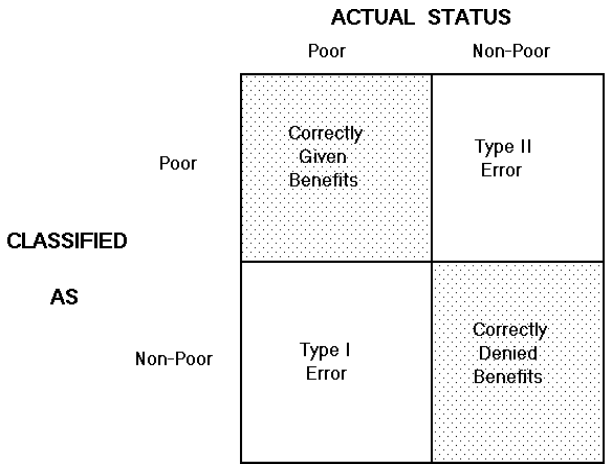

Exhibit 2-8 Accuracy of Targeting: Actual vs. Classified Status

How do we compare a low-leakage, low-coverage outcome to a high-leakage, high-coverage outcome? The relative weights put on Type I and Type II errors depend on the policy objective (and on the extent to which reduction of Type II error automatically translates into increased benefits to the poor). According to the view of equity adopted in this paper, Type I error is more serious than Type II because Type I directly undercuts the absolute welfare of the poor; reducing Type II error is important primarily because it frees up resources to help the poor, at least potentially, and only secondarily because it reduces welfare differentials between poor and non-poor. Tradeoffs between Type I and Type II error can be formally weighted using a poverty measure.[16] Poverty measures can be adapted for use in evaluating health sector outcomes by being calculated not on the basis of income or income distribution, but on the basis of health sector indicators. Ideally we would like to measure the impact of targeting on the distribution of access to health care,

[15] Strictly speaking, there is a fifth and sixth targeting outcome: underpayment and overpayment of benefits to qualifying persons. These can be thought of as forms of undercoverage and leakage.

[16] Grosh (1992a) suggests the Foster-Greer-Thorbecke (FGT) class of poverty measures because it has axiomatically desirable properties and is readily interpreted (Foster, Greer, and Thorbecke, 1984).

but since we cannot directly measure and rank individuals' levels of access, we may have to settle for measuring the impact of targeting on the distribution of health care or health resources consumed.

Calculating accuracy on the basis of Type I and Type II errors requires information on those who do not participate in the program as well as program beneficiaries. In practice, such complete information is generally not available. A measure of accuracy which can be calculated with information on program beneficiaries only is incidence. Incidence is given by the distribution of beneficiaries (or benefits) across income groups (Grosh, 1992a). The higher the proportion of beneficiaries belonging to poor groups and the smaller the proportion belonging to high income groups, the more accurate the targeting.

A final comment about accuracy is in order here. It is necessary to distinguish between the accuracy of a particular targeting mechanism and the overall accuracy of a program. For example, Exhibit 2-9 shows a targeting strategy which combines a general price subsidy with direct targeting; the non-poor are willing to pay at least **MC** and each receive a subsidy of **MC** - $\mathbf{P_s}$, whereas the poor are only willing to pay between 0 and **MC** and receive a full subsidy of **MC**. The direct targeting mechanism (the means test) perfectly classifies every person who seeks care, but despite an error-free means test, the program is subject to Type I and II error because not everyone who needs care seeks it, and the general price subsidy leaks benefits to the non-poor. Program leakage is given by the darker shaded area, whereas the program's shortfall in coverage is the number of people who need treatment but who do not seek it even when it is free of charge. Removing all error from the program requires removing the general subsidy, continuing to directly target subsidies to the poor, and engaging in outreach activity to reach those who do not seek care even when **P** = 0. In practice, undercoverage is usually due to budget constraints rather than inability to identify the poor (Grosh, 1992a).

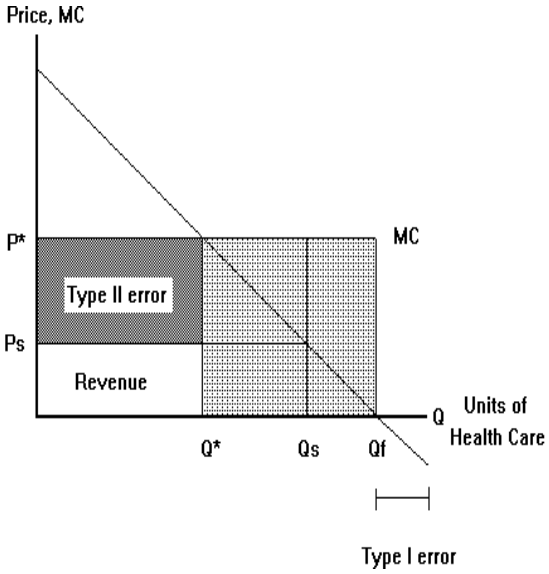

Exhibit 2-9 Type I and II Errors When A General Price Subsidy is Combined with Direct Targeting

2.6.5 The Cost Tradeoff

The more accurate a targeted program is, the higher its coverage (reduced Type I error) and the lower its leakage (reduced Type II error). Achieving a high degree of accuracy, however, requires costly information-gathering effort to identify the poor and exclude the non-poor. Of the three mechanisms for providing benefits to the poor—general price subsidies, characteristic targeting, and direct targeting—each delivers benefits with different degrees of accuracy and different informational

requirements (and hence, costs). The inverse relationship between accuracy and informational requirements is shown in Exhibit 2-10.

	Inaccurate, Low Informational Requirements <——> High Informational Requirements			Accurate, Requirements
	General Price Subsidies	Characteristic Targeting	Proxy-Based Direct Targeting	Income-Based Direct Targeting
Type I Error	low to high	medium	medium	low
Type II Error	high	medium	medium	low

Exhibit 2-10 The Tradeoff Between Accuracy and Informational Requirements

A general price subsidy (as shown in Exhibit 2-5) is the "leakiest" method for delivering benefits to the poor and screening out the non-poor. No attempt is made to prevent the non-poor from receiving government health services free of charge, and thus benefits go to those who would have paid for services anyway. This "wastes" resources rather than directing them to those who need the service but are unable to pay or reducing government spending. Not only are the government costs of general price subsidies huge and benefits delivered to the non-poor, but many people who need health care may be missed either because they undervalue the benefits of treatment or the government is too resource-constrained to provide services within reasonable distance of the entire population. Furthermore, there is the general problem of allocative inefficiency resulting from the divergence between actual prices and marginal cost; services go to some people whose marginal benefit from the services is less than marginal cost. Again, these services could have gone to people for whom the benefits exceed marginal cost but who could not afford to pay.[17]

Nonetheless, it is possible that these problems are offset by the benefits of a general subsidy, namely the increased access of the poor to health services and virtually non-existent targeting costs. This is more likely to be true if the government's overriding objective is to increase the access of the poor rather than to equalize access for everyone, if the targeted group is a large proportion of the population,[18] if the amount of benefit per recipient is small, or if the costs of targeting are high. General price subsidies have the advantage of requiring very little information; they require no information about the poor, non-poor, beneficiaries, or potential beneficiaries (though, depending on the government's objectives, they may require other sorts of information such as price elasticities of market demand or world prices). Demery and

[17] An additional problem posed by general price subsidies is disincentive effects on private providers (Timmer et al., 1983).

[18] Typically, targeted programs aim to provide subsidies to between 10 and 20 percent of the total population.

Addison (1987) comment, "Although targeted food programs have lower budgetary cost than marketwide food subsidies (for the same level of nutritional support), they have higher delivery costs than subsidies. The administrative difficulties in implementing targeted programs are well known, and improving institutional ways to identify vulnerable families and deliver targeted foods is essential."

At the other end of the spectrum, direct targeting (Exhibits 2-6 and 2-7) does a much more accurate job of channeling benefits to the poor but has high informational requirements. Both the accuracy and costs of income-based targeting are higher than those of proxy-based targeting. In principle, direct targeting funnels all program benefits to the poor, allowing none of the non-poor to receive benefits, and missing few or none of the poor, but direct targeting may be very costly because it requires information on the economic status of all potentially eligible individuals or households. When the purpose of targeting is general poverty reduction and the benefits are income or food transfers, information must be gathered on the entire population, and the limited amount of information which the government can afford to gather from each individual or household may not accurately identify the poor. The costs of direct targeting in the health sector may be less than the costs of direct targeting for poverty alleviation because members of the population do not need to be identified as poor or non-poor all at one time, and only those people seeking health services are screened.

Besides being costly, direct targeting has problems posed by self-reporting; usually economic information on prospective beneficiaries is furnished by the prospective beneficiaries themselves, giving them the opportunity to withhold or falsify information on earnings, household production, and other indicators of economic status to receive program benefits. The problem of underreporting income can be mitigated and direct targeting can be made more accurate, but only by incurring additional information-gathering cost such as home visits by social workers or fraud investigation. Finally, another problem with direct targeting is that over time, people's absolute or relative economic status may change, rendering obsolete the categorizations of people as poor or non-poor and requiring repeated, costly information-gathering efforts.

Characteristic targeting falls in between general price subsidies and direct targeting in terms of both accuracy and informational requirements. Unlike general price subsidies, characteristic targeting makes some attempt to differentiate the poor from the non-poor. Sorting is done on the basis of general characteristics known to be correlated with poverty such as geographic location, age, or height-for-age ratios, or on the basis of self-selection. This type of targeting is subject to wide margins of error, allowing some benefits to go to the non-poor and some poor to be missed (Glewwe and van der Gaag, 1988). Thus, while characteristic targeting is more effective than general price subsidies at channeling resources to the poor, it is less effective than direct targeting.

On the other hand, the informational requirements of characteristic targeting are much less exacting than those of direct targeting. Characteristic targeting requires only data on the general attributes of the poor, rather than specific economic information on each potential beneficiary. A characteristic profile of the poor can be provided by a detailed household survey such those conducted under the World Bank's Living Standards Measurement Study (LSMS). If self-targeting is to be used, information is required about differences in demand between

different income groups. Once the information required for characteristic targeting is known, the costs of targeting are very low.

Relatively high degrees of accuracy can be achieved at relatively low cost by combining methods of channelling benefits to the poor. For example, prices could vary by socioeconomic status of the region (general price subsidies/characteristic targeting) and people qualifying as poor could receive services for free (direct targeting), as in Exhibit 2-9. (Eligibility thresholds could vary by region as well.) The leakage of characteristic targeting can be reduced by combining it with direct targeting, for example, by offering services at subsidized prices in poor areas (characteristic targeting) while requiring civil servants and others known to have relatively high incomes to pay marginal cost (direct targeting). In practice, this last example may not be politically feasible (*see Section 2.6.6*). From here on out, we use the term "targeting strategy" to signify a single targeting mechanism or combination of targeting mechanisms.

2.6.6 Efficiency of Targeting

Both accuracy and costs determine the efficiency of targeting. Thus, the most accurate strategy is not necessarily the most efficient because it might entail high costs.[19] The "output" to be produced as efficiently as possible is defined by the policy objective (for example, providing the biggest transfer to the poor). In this case, the most efficient targeting strategy is the one that transfers the largest portion of a fixed budget to the poor. This requires minimizing costs, namely the sum of targeting costs and costs in the form of leakage to the non-poor. Different policy objectives, such as providing a subsidy of amount **s** to the greatest number of poor people or minimizing inequalities between poor and non-poor, lead to different ratings of efficiency of alternative targeting strategies.

Whatever the policy objective, a perfectly efficient targeting strategy maximizes the objective function with available resources, uses the lowest cost inputs to do so, and therefore achieves the maximum at the lowest cost. If there is a continuous choice of strategies available, ranging from an inaccurate general price subsidy with no targeting cost to a perfectly accurate strategy with high targeting cost, the optimal strategy is that which equates the marginal gain in the policy objective to the marginal cost (Kanbur and Besley, 1988). Targeting efficiency and economic efficiency should not be confused; as seen in the following section, efficient targeting can promote economic inefficiencies. The efficiency of a targeting mechanism such as a means test must be evaluated in light of other available targeting mechanisms or strategies. In fact, the subject of this paper notwithstanding, it is worth bearing in mind that the most efficient targeting strategy need not include means testing, as when the poor are geographically concentrated in specific regions. Typically, however, the primary objectives of a cost recovery policy are revenue generation and quality improvement, whereas means testing is enlisted to meet the secondary objective of targeting the poor.

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[19] Remember that the definition of accuracy depends on the relative weights of Type I and Type II errors dictated by the policy objective.

2.6.7 Behavioral Effects of Targeting

Before turning to means testing, additional considerations are presented here that should be borne in mind when designing a targeting program. A full analysis of the costs and benefits of targeting would take into account its behavioral effects and political feasibility. The presence of targeting can lead to behavioral effects other than the simple price effects of subsidies. These effects are more pronounced when eligibility and benefits are all-or-nothing rather than graduated.

The most commonly cited behavioral effect brought on by targeting is the incentive effect. Incentive effects distort behavior and dampen productivity to the extent that consumers reduce work effort, savings, or investment to qualify for government benefits. Incentive effects need not all be negative, however. Sometimes eligibility requirements can be used to induce desired behavior. Grosh (1992a) cites the example of a Honduran food stamp program available only to qualifying children enrolled in school. One year after the program was introduced, school enrollment rates in participating states increased by eight to 15 percent depending on the grade, as compared to increases of one to three percent in non-participating states.

Another behavioral effect of targeting is signaling (e.g., keeping or switching to a thatched roof instead of tin because a program uses roof type as criteria in estimating income and determining eligibility). Finally, a third behavioral effect is rent-seeking by targeting agents. Rent-seeking occurs when eligibility is established through a means test and a non-poor consumer bribes the agent administering the test to classify the consumer as poor. Signaling and rent-seeking result directly in Type II error and indirectly in Type I error by reducing benefits available to the poor.

2.6.8 The Political Feasibility of Targeting

Thus far, the discussion of targeting has focused on economic considerations, although certain policy implications which follow from a strictly economic analysis of targeting may not be politically feasible. For example, the requirement that civil servants, members of the military, and university students not be granted automatic exemptions from paying health fees may not be realistic given the historical precedent in many countries of granting an array of free or heavily subsidized benefits to these groups. Because political realities may make it impossible to eliminate leakage of government subsidies to the non-poor by withdrawing these benefits, it is important to take into account both the costs of such subsidies and existing political forces (including foreign donors) when planning delivery of services to poor or otherwise vulnerable people. Feachem et al. (1989) state that "attempts to provide health services in rural areas may be sabotaged by local elites or even by the health bureaucracy itself (Mosley, 1985)."

In a fascinating historical account of government anti-poverty programs in the U.S., Skocpol (1989) observes:

> Rarely do advocates of targeted benefits or specially tailored public social programs face up to the issue of where to find sustained majority political support for such efforts.... [C]ross-national research on social expenditures has found that universal programs are more sustainable in democracies, even if they are more expensive than policies targeted on the poor, or other "marginal" groups, in isolation of the general citizenry.

Skocpol describes a recurrent pattern in which targeted programs in the U.S. are grossly underfunded relative to stated goals; programs and program managers become subjected to widespread public criticism; programs and their beneficiaries are increasingly stigmatized; and eroding public support turns into outright political backlash against the programs. On the other hand, "universal" programs benefitting the general public have often accommodated specific efforts to help the poor. "[P]olicies aimed at constituencies that cross lines of social class, ethnicity, and race—and which include generous benefits for the middle strata—have fared much better politically." Skocpol cites social security as the most important example of a universal program that has benefitted vulnerable populations:

> Today Social Security is not only the most politically unassailable part of U.S. public social provision; it is also America's most effective anti-poverty program.... Indeed, "helping the [elderly] poor without talking about them" has not only worked better but proved more politically durable than did the War on Poverty and Great Society's vociferous, targeted efforts to help the working-aged poor and their children. The gains achieved for Social Security programs during the 1960s and early 1970s proved durable even in the face of Reagan Administration onslaughts against social spending during the 1980s.

Of course, the political and economic structures of the U.S. are significantly different from most developing countries, particularly countries with a practically non-existent middle class and no history of formal, national, electoral democracy. Nonetheless, the generalizable lesson from U.S. experience is that, ultimately, the poor may best be served by programs that promote general welfare, programs which draw political support from alliances including but not limited to the poor. Grosh (1992a) conveys this idea as follows:

> Many discussions of targeting (see, for example, Besley and Kanbur, 1990, Alderman, 1991 and Ravallion, 1992) assume that an individual's political support for a program is determined by whether or how much that individual may benefit from it, and that the poor have little political voice. Thus, if a program is well targeted to the poor and they are relatively disenfranchised, the program may have little political support and a correspondingly small budget. In contrast, a program that provides enough benefits to the middle class may garner their support and thus have a bigger budget. Even after allocating a share of benefits to the middle class, the budget left for the poor may still be bigger than it might be if the budget depended only on their political support. Thus, good targeting might run counter to the interest of the poor.

The political economy of targeting may also include producer interests, as when a government favors targeted nutritional programs over general price subsidies on domestically produced agricultural products. The importance of producer resistance to targeting depends on the degree to which producers' economic interests are threatened and how organized producers are. In any case, producer opposition to targeting is probably relatively unimportant in the context of health care.

2.7 MEANS TESTING

2.7.1 General Concepts of Means Testing

Of the three broad classes of mechanisms for providing benefits to the poor—general price subsidies, characteristic targeting, and direct targeting—only direct targeting requires economic information on specific individuals or households, and thus only direct targeting requires means testing. The objective of means testing is to make targeting of resources to the poor more accurate. In the context of health care cost recovery, it is the mechanism by which indigent patients are identified and exempted (partially or wholly) from paying for health services, thereby removing or lowering price barriers, increasing access of the poor to health services, and improving the equitability of the health system. Means tests can be based on income, income proxies, or a combination of the two.

As mentioned earlier, a means test may be highly accurate at sorting patients without having a sizeable impact on equity. This occurs if poor people are prevented from seeking care because of non-price barriers to access such as lack of information about exemptions, ignorance about the value of benefits, or distance. In this case, the means test may result in little or no Type I error (poor applicants are not misclassified as non-poor), while the program as a whole has considerable undercoverage because many poor people do not make it to the application stage. Another reason for undercoverage not related to means-testing effectiveness is inadequate resources to serve the entire target population. Similarly, a means test could result in little or no Type II error (non-poor applicants are not misclassified as poor), yet be disregarded, causing the overall program to have considerable Type II error either because of general price subsidies or because non-poor patients obtain care free of charge through channels other than the means test (for example, when free care is given to non-poor civil servants, members of the military, students, and friends and relatives of facility employees).

Because most of the developing country literature on means testing has been written in the context of general poverty alleviation under structural adjustment (Demery and Addison, 1987; Glewwe and van der Gaag, 1988; Kanbur and Besley, 1988; Ravallion and Chao, 1989; Glewwe and de Tray, 1989), it is important to ask how means testing differs (or should differ) when the goal is to promote access to basic health services rather than to alleviate general poverty or redistribute income. If program purposes are different, eligibility may be based on different criteria and the range of appropriate policy tools may be different. For example, it may not be as important to avoid Type II errors when targeting health services as opposed to general income transfers, especially when the goal of income transfers is to lessen disparities between rich and poor. Compared to general taxing agencies such as Ministries of Finance, Ministries of Health may be limited in their ability or desire to use negative subsidies (prices greater than marginal social cost) to redistribute welfare from the non-poor to the poor. Health benefits (with the partial exception of drugs) are not as readily resold or redistributed within households as are food benefits distributed under a poverty alleviation program. Another possible difference is that information gathering may be less onerous and costly when eligibility is determined at the point of service rather than for the entire population at one time. Means testing in the health sector can benefit from economies of scope (cost savings in the production of one good due to the production of another good) by using information gathered for other programs when such information already exists.

The remainder of Section 2.7 discusses important conceptual and practical considerations in designing, implementing, and evaluating means tests: tradeoffs in means testing, defining the target population, criteria for eligibility, partial vs. total exemptions, and administration of the means test.

2.7.2 Tradeoffs in Means Testing

Two important tradeoffs must be considered in designing a means test:

- The cost tradeoff between providing program benefits such as health care and conducting precise but costly means tests, and
- The stringency tradeoff between reducing leakage and increasing coverage (reducing Type II and Type I error); a very stringent means test, while reducing Type II error, may increase Type I error, since measures to exclude the non-poor are likely to inadvertently exclude some poor as well.

The two tradeoffs are difficult to separate because stringency measures (such as fraud investigation) generally entail additional costs. Because these tradeoffs have only recently begun to be studied (Grosh, 1992a and 1992b), their magnitudes are not fully understood. To the extent that the stringency tradeoff is shown to exist, other targeting measures, such as active outreach to the poor, should accompany means testing to reduce Type I error. The optimal allocation of resources between program benefits, means testing, and other targeting measures depends on the weights policymakers place on improving the absolute access the poor have to health care vs. the access the poor have relative to the non-poor.

2.7.3 Defining the Target Population

Before a means test can be designed and applied, the target population must be defined. Most means tests in developing countries have been designed for general poverty alleviation or nutritional improvement (Levine et al., 1992; Grosh, 1992a and 1992b), and have therefore defined the target population in terms of overall welfare, as gauged by either income or consumption measures.[20] Ability to pay for health services and welfare, though highly correlated, are not the same thing. Wealth and non-monetary factors influencing welfare (e.g., food production, land holdings, and livestock) play a secondary role to cash income in determining ability to pay for health services. Further, in the context of health care cost recovery—where the primary goal is that everyone have

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[20] Since utility and welfare are derived from the consumption of goods and services, there are strong theoretical grounds for using consumption rather than income as an indicator of welfare. Consumption is also less likely to fluctuate in response to transitory shocks (e.g., weather, inflation, currency devaluation, etc.) because it reflects past and expected future income in the form of savings and assets, including human capital. Although theory suggests that consumption is superior to income as a measure of welfare, accurate household consumption data may be considerably more difficult to obtain. Glewwe and de Tray (1989) assert that "identifying the poor using a consumption-based definition of poverty is difficult and costly."

Whether per capita income or consumption is used as a measure of welfare, non-monetary factors influencing welfare should be accounted for (e.g., food or other goods and services produced and consumed by the household, the use of durable goods such as housing, and ideally, leisure and pure public goods). Accuracy of the welfare estimate is improved if adjustments are made for household size and composition. This is done dividing by the number of household members by a household equivalence scale, which gives decreasing weight to additional household members, gives lower weight to children than adults, and accounts for returns to scale in consumption and advantages of joint consumption (see Deaton and Muellbauer, 1980 and 1986).

access to basic health services—we are more concerned with actual consumption of health services by different income groups (adjusted for differences in health status) than with the household's overall, long-run level of welfare. (Nonetheless, governments often adopt policies of preserving living standards by limiting the financial burden of health care on households, including non-poor households. The equity objectives outlined in Section 2.4.4.—increasing access of the poorest to basic health care and reducing differentials in access by income—may be complementary but not identical to the living standards-preservation objective.)

In accordance with our equity objectives, we define the target population as people who, on the basis of characteristics related to ability to pay health fees, have unacceptably low access to basic care (i.e., unacceptably low probability of seeking basic care when needed) at the prevailing price. Thus, for purposes of health sector means testing, a household is defined as experiencing poverty if it falls into this target group. In principle, we would like to apply the means test to individuals but it is generally more practical to classify all members of the same household as exempt or non-exempt. Income transfers within households and the difficulty of attributing incomes or assets to individuals within the household justify the use of the household as the beneficiary unit in most cases. "[O]ne has little choice but to assume that all members of each household enjoy the same level of economic well-being. Regrettably, this ignores the important question of the intra-household distribution of consumption" (Glewwe and van der Gaag, 1988). As mentioned, policy tools other than the means test can be used to target health services to people who may receive too little health care despite belonging to non-poor households. For example, means testing and characteristic targeting could be combined such that eligibility thresholds differ by individual characteristics (age, sex) or by illness (chronic or contagious). Under such a strategy, some households have both exempt and non-exempt members.

2.7.4 Criteria for Eligibility

Characteristics related to ability to pay for health services include monetary income, household expenditures, and, to a lesser degree, non-monetary factors and wealth. Other socioeconomic characteristics might also influence or be related to ability to pay health fees, such as sex of the head of household or extenuating circumstances (e.g., crop failure or prolonged hospitalization).

Ideally, the means-testing criteria should correctly identify the target population and be based on easily obtainable information. Huber et al. (1989) used outpatient data from rural Kenya to examine how well socioeconomic characteristics predict ability to pay (as measured by income). Reported annual cash income was regressed on patient and household characteristics, specifically the patient's sex, age, marital status, family size, and mode of transportation to the health facility, and the education and occupation of the head of household. Although most of the regression coefficients were of the expected signs, they were generally not significant, and the variables explained only 10 percent of the variability in annual cash income.

In another study, Glewwe and van der Gaag (1988) used data from Côte d'Ivoire to classify people as poor or non-poor according to alternative definitions of poverty. They attempted to find a definition of poverty which was easier to apply than their conceptually preferred definition—adjusted per capita consumption—but which identified roughly the same people as poor and as non-poor.[21] Although their preferred definition of poverty differed from this study, their results are instructive, namely that "shortcut" definitions of poverty are unreliable. The various definitions of poverty identified as poor groups of people with very different characteristics. Unfortunately, the two definitions which correlated relatively strongly with adjusted per capita consumption (unadjusted per capita consumption and per capita food consumption) required almost as much information as their preferred definition, and the definitions requiring the least information were the least accurate, thus confirming the inverse relationship between accuracy and informational requirements depicted in Exhibit 2-10.

This paper's definition of poverty—having socioeconomic characteristics making it unlikely that basic health services will be consumed when needed at the prevailing price—may be easier to operationalize than adjusted per capita consumption, given that there is much empirical information on the correlation between household characteristics and demand (Bitran, 1989; Ellis and Mwabu, 1991; Gertler and van der Gaag, 1990). The ideal eligibility criteria are strong predictors of health care use (or lack thereof), readily observable or verifiable by the agent administering the means test, not under control of the potential beneficiary (to minimize distortionary effects), low cost, and socially acceptable.[22] Because factors such as level of education, occupation, possession of a radio or tin roof, recent market expenditures, etc. correlate more or less strongly with demand in different settings, the criteria should be tailored to the specific country and possibly to specific regions within a country (e.g., rural vs. urban). Some proxy-based means tests follow contingencies such as "if at least two of the following three criteria are met..." or "If x and/or y, but not z, criteria are met...." When criteria are chosen through a process of community participation, means tests are more likely to accurately identify the poor, reduce leakages to the non-poor, and reduce means-testing costs (Subbarao, 1993).

Criteria may also depend on logistical considerations (*see Section 2.7.6*): how familiar facility personnel are with the catchment area, the proportion of patients known by facility personnel, the potential for recruiting local leaders (e.g., village chiefs, community committees) to conduct or verify the means test, cultural stigma of indigent status, literacy of the population, the proportion of the target population able to provide wage or tax documentation, and criteria used by other social welfare programs operating in the area. A measure of discretion in applying criteria on the part of the agent administering the means test may be unavoidable (or even desirable), though this increases the temptation to accept bribes or waive fees for acquaintances. Finally,

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[21] Their alternative definitions of poverty were per capita income, total household consumption, per capita consumption, per capita food consumption, and various indicators based on food consumption, weights and heights of children under nine, per capita dwelling space, educational level, and per capita agricultural land.

[22] Levine et al. (1992) cite ethnicity as an example of a criteria which may be highly correlated with poverty but socially unacceptable as a basis for granting exemptions.

criteria may need to be updated periodically to reflect changes in overall economic conditions such as inflation or rising incomes.

2.7.5 Partial vs. Total Exemptions

Ordinarily, a means test involves a strict threshold which is either met or not met. "Poverty has traditionally been defined as a discrete characteristic—either one is poor or one is not. Given a particular indicator of welfare, a certain line or standard is drawn, and an individual or household falls on one side or the other" (Glewwe and van der Gaag, 1988). However, it is possible for a means test to determine eligibility for partial exemption. A means test which determines how much, if anything, someone pays on a sliding scale has better economic efficiency effects than a means test with a strict cut-off because it (a) curbs "moral hazard" of beneficiaries; (b) partially recovers costs for treatment which would have been fully subsidized under a total exemption; (c) reduces "the implicit tax on earned income" thereby creating less of a disincentive to work (Timmer et al., 1983); and (d) reduces the temptation for potential beneficiaries to misrepresent information determining eligibility. The obvious—and major—disadvantage of a sliding scale means test is that it is considerably more costly to administer. "[I]n a formal public system a sliding scale would be costly to administer, and experience with this approach is lacking" (World Bank, 1987).

2.7.6 Administration of Means Tests

Like eligibility criteria, the administrative structure of the means test depends on who is available to screen applicants and verify information, the level of effort required to gather reliable information, the literacy of the population, availability of wage or tax records, and the existence of other means-tested programs. Additionally, administration of the means test depends on the potential for maintaining written records either at the health facility or elsewhere and the stability of the population (e.g., whether a significant proportion is nomadic). Barnum and Kutzin (forthcoming) point out that "[c]ountries differ as to whether it is the patient's responsibility to prove their indigence or if the burden is on the [health facility] to determine a person's payment status." In most cases, means tests are conducted at the point of service, whereas in some countries, typically those with national health insurance schemes, patients seeking indigent status are required to take a prospective means test before visiting a health facility. "Prospective identification is usually performed through local government institutions, and requires periodic updating of the list of those who qualify for exemption" (Barnum and Kutzin, forthcoming). In urban areas, centrally administered certificates of indigence may be appropriate, especially if they can be used for multiple programs such as food aid or income transfers, thus capitalizing on economies of scope. Government authorities sometimes issue health care vouchers to the poor, in which case measures are taken to prevent resale. According to Vogel (1988), the voucher system works well in Ethiopia.

In rural areas, it may be more practical for local leaders to administer the means test. For example, in Senegal, development committees and health councils at various levels are available to grant exemptions (Vogel, 1988). Sometimes means tests are administered directly by health facility personnel, as in some private facilities in Kenya (Huber et al., 1989). Compared to a centrally administered means test, a major advantage of a locally administered test is that asymmetries of information between the applicant and administering agent about the

applicant's economic status are likely to be smaller, at least in rural settings. Similarly, facility-administered means tests may have cost advantages if personnel are familiar with the catchment area, enabling them to easily assess the eligibility of applicants.

When exemptions are granted at the local level or at the facility, however, social pressures on local leaders or facility personnel to accept bribes or waive fees for acquaintances might make it difficult to prevent leakage. Assigning facility personnel the responsibility of determining who is and is not eligible for exemption not only places them under pressure to waive fees, but detracts from time and effort devoted to treating patients. In Niger, personnel working in facilities about to start cost recovery expressed a strong desire not to be involved in conducting means tests (Diop, 1993). Leakage can be constrained by giving the facility or community a fixed fund for indigent care or a fixed number of exemption vouchers. If the facility administers the means test and keeps at least some revenues generated by cost recovery, it already faces incentives to minimize exemptions. (In fact, the incentives may be too strong, resulting in unacceptably high Type I error.) Whether the means test is administered locally or centrally, additional measures to limit leakage include publicizing the application process and eligibility criteria; selecting clear-cut, objective criteria; limiting the amount of discretion given to administering agents; and involvement of local committees in the screening process.

Another administrative issue is that of which family members apply for exemption. Men may be in a better position than women to request and fulfill a means test if they have better knowledge of the exemption procedure, are better able to document the household's economic status, or have more clout with the agents administering the means test. Given that women ordinarily have responsibility for children's health, special steps may need to be taken to inform women about potential exemptions and ensure their ability to submit required information.

A final issue is the frequency with which the means test is reapplied. Permanent exemptions would strongly encourage cheating and allow people who had become ineligible due to improved economic status to continue to receive benefits unfairly. On the other hand, requiring people to reapply for exemptions for every visit or even every episode of illness may be too cumbersome and costly. The optimal duration of an exemption will depend on frequency and magnitude of income fluctuations as well as the cost of means testing and recording the results of the test.

2.7.7 Country Characteristics Affecting Means Testing[23]

The feasibility of means testing is influenced by local economic and social characteristics. Means testing seems to be more heavily relied upon as a mechanism for targeting in developed countries than in developing countries. Levine et al. (1992) state that "[t]he vast majority of targeting in industrialized countries, particularly the U.S., is carried out through some form of means testing, typically based on income." The following features of developed countries facilitate means testing:

- Infrastructure and recordkeeping capacity are well developed (and frequently computerized), making income information readily

[23] This section draws largely from Levine et al. (1992).

available and permitting systematic, centralized application procedures.

- Most of the population is involved in the market economy; most employment is formal; and seasonal fluctuations in income are relatively unimportant.
- The population is geographically concentrated and highly literate.

Conversely, developing countries have features that hinder means testing:

- The population may be sparsely located.
- Infrastructure and information are not readily available.
- Much of the population is outside the formal market economy, making it difficult to require documentation of earnings.
- Much of the population is illiterate, making it difficult to require application forms.
- The high correlation between rural residence and poverty may imply that geographic targeting alone is the most efficient targeting strategy. (This is less likely to hold when policy objectives include both targeting and cost recovery).
- The severity of poverty amongst the poorest often makes coverage a higher policy concern than leakage, giving rise to fears that too-stringent means testing will wrongly deny some poor people benefits. (Again, the necessity of recovering costs can offset concerns about Type I error.)

Now that a conceptual framework has been developed for discussing targeting and means testing, actual targeting experience under a variety of conditions in both the U.S. and developing countries will be examined.

3.0 SUMMARY OF LITERATURE AND EXPERIENCE REVIEW

Section 2.0 discussed key concepts related to targeting and developed a conceptual framework for evaluating alternative targeting strategies, including means testing. In Section 3.0, actual targeting experience from around the world is detailed before an agenda for further research is presented in Section 4.0. In keeping with the wide variety of policy objectives, targeted programs that have been researched differ by type of benefit, target group, and targeting strategy. Since the purpose of this paper is to examine means testing as a mechanism for meeting equity goals in the presence of health care cost recovery, this section selectively reviews targeting experience with priority given to health sector means testing in developing countries. For more comprehensive surveys of targeting in developing countries, see Levine et al. (1992), Grosh (1992a and 1992b), Musgrove (1993), and Pfeffermann and Griffin (1989).

3.1 EXPERIENCE IN THE U.S.

There are roughly 60 means-tested state and federal programs in the U.S., with about half the total expenditures accounted for by four programs: Aid to Families with Dependent Children (AFDC), Supplemental Security Income (SSI), food stamps, and Medicaid (*see Exhibit 3-1*). These programs have elaborate procedures for establishing eligibility, "typically involving a combination of self-reporting, cross-checks with employer records and tax reports, and occasional home visits" (Levine et al., 1992). Most programs have quality assurance procedures whereby a sample of cases is selected for more extensive review, sometimes at both the state and federal levels. The review process entails field investigation, contacts with banks, employers, landlords, and other sources of information. In general, these programs seem to be preoccupied with preventing leakage of benefits, devoting relatively little attention to possible undercoverage arising from failure of members of the target population to apply for benefits.

The accuracy and effectiveness of means-tested programs in the U.S. are hotly debated; estimated leakage of programs overall varies from almost none to nearly 50 percent. There is more agreement about the administrative costs of targeted programs, though targeting costs *per se* are not known. Levine et al. (1992) report that administrative costs range from five percent of total benefits for Medicaid, which relies upon means testing of other programs, to about 16 percent for food stamps, which undertakes independent means testing. Another source reports similar administrative costs: 2.5 percent for universally available programs to 12 percent for means-tested programs (World Bank, 1993).

The AFDC program serves as a good example of a means-tested program in the U.S. providing monthly cash transfers to low-income households with children. Although the particular eligibility criteria vary by state, applying households typically undergo a six-month review in which they must provide social workers with proof of earnings. Administering agents consult "encyclopedia-sized" volumes of regulations and sometimes conduct home visits to verify eligibility. 1985 data suggest that of the $15 billion paid in benefits, about six percent was leakage, either in the form of payments to ineligible recipients or overpayments to eligible recipients. A negligible amount of the total value of benefits (less than one percent) was incorrectly denied to eligible applicants, although it is not known if there was significant undercoverage because potentially eligible households failed to apply for

Exhibit 3-1 Means-tested Programs in the U.S.[24]

PROGRAM	TYPE OF BENEFIT	TARGET GROUP	ELIGIBILITY	VERIFICATION PROCEDURES	TOTAL BENEFITS (billions)	ADMIN COSTS (%)	LEAK-AGE (%)	UNDER-PAYMENT (%)
AFDC	periodic cash transfer	low-income children	low-income families (per state guideline) with children	applicants provide countable income data to local office; quality control via probability samples	$15	11.9	6.2	0.6
SSI	periodic cash transfer	low-income aged, blind, disabled	low-income aged, blind, disabled with exhausted resources	applicants provide countable income data to agency; quality control at various state, federal levels	$10.9	8.7	3.2	1.0
Food Stamps	monthly coupons for range of food items	low-income households	low-income households (below 130% of poverty line if disabled)	applicants provide countable income data to agency; quality control at various state, federal levels	$10.8	15.6	8.3	2.3
Medicaid	reimbursement to provider for medical expenses	low-income households, individuals	all AFDC, SSI recipients; "medically needy" as determined by state	applicants with proof of AFDC, SSI, low-income status	$31.3	5.1	2.6	n/a
Pell Grants	reimbursement to provider for educational costs, with family co-pay	financially needy students	students meeting Congressionally-mandated means test	applicants provide income data to schools; quality control through follow-up	n/a	4.2	16	5

[24] This table is taken from Levine et al., 1992. Data is for 1985. The last three columns are expressed as a percentage of total benefits. Underpayment refers only to benefits mistakenly denied to eligible applicants and does not include undercoverage arising from failure of members of the target population to apply for benefits.

benefits. Estimated administrative costs were approximately 12 percent of total benefits.

Like AFDC, the SSI program provides monthly cash transfers. The target population is the aged, blind, and disabled poor. Documentation required to establish eligibility includes proof of age, pension, and wage income. Applicants must provide names of third parties such as employers to verify information. The SSI program uses random sampling to double-check records and estimate the accuracy of payments. Of the $10.9 billion paid in benefits in 1985, about three percent was leakage, and underpayments were estimated as one percent of total benefits. Estimated administrative costs were 8.7 percent of total benefits.

The food stamp program provides poor households with vouchers redeemable for most foods. Eligibility is established through records of wages and other income. Of the $10.8 billion paid in benefits in 1985, over eight percent was leakage, while underpayments were estimated at 2.25 percent of total benefits. Administrative costs were approximately 16 percent of total benefits.

Medicaid was established in 1965 to partially pay the medical expenses of poor families with children and poor people who are aged, blind, or disabled.[25] Medicaid is one of the surprisingly few programs that takes advantage of other programs' targeting efforts; Medicaid eligibility is linked to eligibility for AFDC and SSI. 1985 benefits totaled $31.3 billion, of which 2.6 percent was leaked to ineligible applicants. Administrative costs were equal to roughly five percent of total benefits.

The main criticisms of the efficiency of means-tested programs in the U.S. are that they devote too many resources to policing the application process to reduce leakage and they fail to take advantage of joint certification. According to a report issued by the National Commission on Children (NCC, 1991), "Multiple layers of bureaucracy and extensive recordkeeping and reporting requirements, developed in part to guard against misuse of public funds, have often cost more than they have saved." In addition, the lack of coordination among programs:

> "...often requires families to travel to different locations, complete lengthy applications, and comply with different eligibility rules and regulations. In the process, many will encounter daunting procedural and bureaucratic hurdles that delay their enrollment in a program or deny it solely on procedural grounds.... For many parents and children, these obstacles appear at a time when they are least able to cope with additional stress or adversity" (NCC, 1991).

Besides being inefficient, the fragmentation of social services and overly stringent screening mechanisms result in problems for the target population, both recipients and non-recipients:

> "The present system also imposes significant psychological costs on families seeking and accepting public assistance.... For some families, the stigma that society attaches to participation in public programs is so great and the application process so demeaning that they forego assistance that is important to their children's long-term health and well-being" (National Commission on Children, 1991).

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[25] Medicare was also established in 1965 to partially pay the medical expenses of senior citizens.

The NCC report recommends "decategorization of selected federal programs to bring greater cohesion and flexibility to programs for children and families."

3.2 EXPERIENCE IN DEVELOPING COUNTRIES

A variety of targeted social welfare programs, many of which use means testing, exist in developing countries. Most of the literature on targeting and means testing to date pays more attention to programs providing cash or food transfers than health programs. As cost recovery becomes more widely used to help finance health services, means testing in the health sector becomes more prevalent and crucial. The state of knowledge and practice of health sector means testing can be advanced by examining previous experience in all sectors, but it is important to keep in mind that programs' different benefits and policy objectives pose challenges. Specifically, health care, unlike cash or food, is typically provided by governments to the general population, not just to the poor or needy; health policy is not explicitly used to redistribute income or welfare. Thus, in contrast with many cash and nutrition programs, objectives of health sector means testing are two-fold: to protect the poor and enforce collection from those able to pay. As collecting payment and improving cost recovery are given increasing priority by developed and developing country governments, it makes increasing sense to supplement characteristic targeting, self-targeting, and price subsidies with means testing.

Fifty-six programs were surveyed to strengthen knowledge about how means testing can be used or improved to protect the poor under health care cost recovery. Exhibit 3-2 gives the distribution of surveyed projects by project type (health vs. non-health), targeting mechanism (is means testing used or not?), and geographic region. Because information on means-tested health services is limited, the survey includes 23 programs which either do not employ means tests or are outside the health sector.[26] Most of the social welfare programs surveyed use a combination of targeting mechanisms, e.g., characteristic targeting plus means testing. More detailed comparative information on each of the 56 projects is contained in Appendix B. The absence of means-tested health programs in south Asia is noticeable, and may signify a lack of fee collection or means testing for health services in the region or unavailability of information about such activity. The large number of blank cells in Tables B-2 and B-3 (Appendix B) testifies to the wide variety of information sources, lack of standard performance criteria, and limited comparability across projects or countries. Cost estimates in particular should not be taken as highly precise. In examining coverage and incidence data, it is important to remember that not all programs surveyed have the poor as the sole target group. Since there is often more information about a means test's official eligibility criteria than how the criteria are applied in practice or about the process by which eligibility is established or denied, the following sections describe selected projects more fully.

[26] Several innovative nutrition programs in Latin America enlisted health facilities in their targeting strategies but were not included in the survey because they were neither means-tested nor health programs *per se*. See Grosh (1992a and 1992b) for further details.

Exhibit 3-2 Developing Country Programs Surveyed by Type, Targeting Mechanism, and Region

	LATIN AMERICA & CARIBBEAN	ASIA	AFRICA	TOTAL (Hospitals Only)
HEALTH, NO MEANS TESTING	2	1	5	8 (1)
NON-HEALTH, MEANS TESTING	11	2[27]	2	15
HEALTH, MEANS TESTING	10	9	14	33 (11)
TOTAL	23	12	21	56 (12)

3.2.1 Illustrative Program Descriptions

These illustrative descriptions provide more in-depth information on a sample of the programs contained in Tables B-1 through B-3. They give a flavor for the range of experiences, conditions under which targeting is applied, problems encountered, and impact. Descriptions were chosen on the basis of information availability and to achieve a regional balance. Information sources for each description are given after the heading.

3.2.1.1 Health Programs with Targeting Mechanisms Other Than Means Testing

To place means testing in the broader context of targeting and to compare and contrast means testing with other targeting mechanisms, we examine two health programs from Latin America which do not use means testing as part of their targeting strategies. Note that in both programs the objective was to provide services to specific populations rather than to improve cost recovery (which requires means testing if the poor are to be protected). Also note that in some cases, these programs had easy-to-identify target populations (e.g., pregnant women). Thus, it may not be fair to hold means-tested health services intended for the general population to the same standards achieved by other targeted health programs.

Costa Rica, National Public Health (Pfeffermann and Griffin, 1989). In the early 1970s, the Costa Rican government used newly-available epidemiological information to target a variety of social services programs to needy populations: primary health care, curative services, health education, child-feeding, and water supply and sanitation. Several types of characteristic targeting were combined: demographic, geographic, and self-selection. "The effects were amazing. By the end of the 1970s, immunization rates exceeded 85 percent. Infant mortality due to vaccine-preventable diseases plummeted after 1972 by 98 percent, from 23 per 1,000 to less than 1 per 1,000 in 1979. Deaths from diarrhea and respiratory infections fell from even higher levels to less than 1 per 1,000 by 1982."

[27] The description of agricultural credit in Bangladesh, Nepal, and Pakistan (Levine et al., 1992) is counted as one program.

Equity improved as well; regions with the worst public health coverage before 1972 showed the most improvement in life expectancy, and the infant mortality improved most amongst families with the least educated mothers. "Differences in infant mortality across income groups were almost wiped out.... Even though these improvements cannot be attributed completely to the change in policies, there was clearly a connection."

Dominican Republic, La Zurza Maternal and Child Health Care (Baker, 1992a). In 1985, the Instituto Dominicano de Desarrollo Integral (IDDI), a Dominican private voluntary organization, initiated an integrated rural development project in the La Zurza district, an area where 95 percent of the population falls below the poverty line, education levels are low, and population density, infant mortality, and malnutrition is high. The project includes a number of different types of programs: social, income generation, credit, construction, and health. The objectives of the health program are to monitor child health and promote vaccinations, breastfeeding, family planning, and good nutritional practices. The target groups of the health program are pregnant and lactating women, and children under age five living in La Zurza. Program benefits include child growth monitoring, educational home visits from volunteer program promoters, classes on a variety of topics such as hygiene and pregnancy spacing, vaccinations, family planning services, and oral rehydration packets. Thus, the targeting strategy includes demographic and geographic targeting, as well as targeting based on condition (which can also be thought of as self-selection based on services demanded).

Costs are kept low because program promoters are not paid directly (though they receive in-kind payment worth $8 per month). Annual costs are about $11.40 per beneficiary, which is remarkably low considering program effectiveness. "In evaluating the program, a comparison of selected health outcomes between 1988 and 1990 indicates that some significant improvements have been made in La Zurza." Childhood malnutrition has decreased from 50 percent to less than 25 percent; the pregnancy rate has been cut in half from 18 percent to nine percent; and "the percentage of mothers exclusively breastfeeding children under four months old has increased by 25 percent."

Because the program is small, and because of multiple targeting mechanisms (geographic and demographic targeting and targeting based on nutritional risk, pregnancy, or lactation), the incidence of program benefits going to the poor (those below the poverty line of 1,073 pesos or $170 per month) is estimated at over 95 percent. In addition to La Zurza's widespread poverty, extensive community involvement in IDDI may explain why incidence is high and leakage is correspondingly low. Although the program is considered a success at meeting both health and some targeting objectives, much of the target population continues to go unserved due to the program's limited resources. Undercoverage is estimated to be 57 percent. "In order to extend coverage, more promoters would need to be trained and the program expanded to additional households." Similarly, health programs which use means testing often find that low coverage is due to small program budgets rather than ineffective targeting.

3.2.1.2 Non-Health Programs with Means Testing

In general, richer detail about means-testing procedures and impact were available for programs outside the health sector than within. Further, means tests outside the health sector provide information about existing administrative capacity

and screening potential which may be exploited for use in the health sector. It is important to note that the type of program benefit influences the nature of targeting processes and outcomes. For example, the pool of potential beneficiaries will be quite different depending on whether a program provides student loans, food stamps, or primary health care. The following seven descriptions come from programs providing a variety of benefits other than health. Three of the descriptions come from Latin America, the region for which the most detailed information was available. Two descriptions from southeast Asia are included, and the two African projects described are both from Kenya, one of the countries for which health sector means testing is discussed later.

Mexico, Tortillas and Milk (Baker, 1992c and 1992d; Grosh, 1992a). Mexico has an extensive system of targeted and untargeted food subsidies. The largest share of food subsidies ($1.1 billion in 1990) is made up of general price subsidies on corn, beans, wheat, rice, and other items purchased disproportionately by middle and high-income groups. In 1989, less than a third of all food subsidy expenditures by the government (about $500 million) went to targeted programs. The 13 such food subsidy programs can be divided into two groups on the basis of program objectives, "those aimed at protecting the purchasing power of the poor, and those aimed at preventing or correcting malnutrition" (Baker, 1992c). The two largest programs, both discussed here, use means testing in combination with geographic targeting to channel nutritional benefits to the poor. In both cases, eligibility is based on family income being under two minimum wages. The beneficiary populations are further circumscribed by the fact that the tortilla program operates only in urban areas, and the milk program is designed for families with children under age 12.

In 1990, after a subsidized tortilla program had been in place for five years, the government restructured the program to expand coverage and improve targeting efficiency. Although eligibility criteria are unchanged, beneficiaries now receive one kilo of tortillas each day free of charge instead of two kilos at a heavily subsidized price (10 percent of cost). Under the milk coupon program (LICONSA), in operation for about 15 years, enrolled families can buy milk at 75 percent of market price. Weekly limits on the amount of fresh or powdered milk families are eligible to buy vary according to the number of children in the family (eight liters for one or two children, 12 liters for three, and 24 liters for four or more).

Administration of the two programs is separate but very similar. Both programs use geographic targeting as the primary targeting mechanism, but include means testing in their strategies. Under the tortilla program's restructuring, geographic targeting was improved by locating tortilla outlets in poor urban areas identified using detailed poverty maps. The poverty maps were constructed on the basis of numerous socioeconomic indicators, including food consumption, chronic malnutrition, infant and child mortality, percentage of indigenous population, population density, communications infrastructure, employment and earnings, education, health, and housing information.

Within areas identified as poor, beneficiaries must take a means test to qualify for the program. Social workers make periodic home visits to verify that participating households fall below the income cut-off and, in the case of the milk program, use birth certificates to verify that participating households have children under age 12. Each program maintains a central roster of enrolled families, and beneficiaries are issued identification cards to be used when making purchases. The

cards for the tortilla program are magnetically coded to be read by electronic machines installed in each tortilla outlet, thereby allowing the amount of tortillas bought by each family to be monitored.

In addition to geographic and demographic targeting and means testing, both programs have elements of self-selection, especially the milk program. The programs attract people who demand tortillas and milk (though the possibility of resale exists). Another self-selection filter is inconvenience; subsidized goods can only be obtained at outlets built solely for the programs. Furthermore, participants in the milk program must go to the outlet to which they are assigned during a designated 15-minute slot falling between 4:30 a.m. and 9:30 a.m.

The annual cost of the tortilla program is $365 million, including fixed costs such as the electronic card readers. The annual cost per beneficiary is about $26, of which $3.12 or 12 percent is administrative cost. Of all of Mexico's targeted food programs, the tortilla program has been hailed as the most cost effective at providing nutritional benefits. The annual value of the transfer is between $90 and $129 per family depending on local tortilla prices. (In addition to the targeted tortilla program, Mexico City has a general price subsidy.) The program's restructuring improved coverage and reduced leakage (before restructuring, 40 percent of benefits went to families with incomes above 1.5 minimum wages). The program was expanded into 27 additional cities, more than doubling the number of participants (even after later weeding out of the participant roster). Participants were required to re-register to continue receiving benefits, and through self-selection and improved verification procedures, the list of eligible families was reduced by 900,000. (In Mexico City alone, the number of beneficiary families dropped from 800,000 to 500,000.) The program now includes about 2.7 million households in over 200 cities. Twenty-five percent of the urban population is estimated to be included in the program (about a quarter of the urban population is below 1.5 minimum wages). The main coverage problem is that rural areas are not included in the program, reportedly "because a large portion of the rural poor make their own tortillas from homegrown or purchased maize, or purchased dough" (Baker, 1992d).

The LICONSA milk program has its own distribution infrastructure (e.g., trucks, refrigeration, outlets), so costs are high and rising due to sharp increases in the international powdered milk prices. In 1991, total program cost was $220 million, and in 1988, administrative costs (including distribution) were 29 percent of total cost. "The cost for rural coverage is estimated to be higher than in urban areas... [b]ecause rural localities are much more highly dispersed than in urban areas," making the number of beneficiaries per LICONSA outlet much lower in rural areas (Baker, 1992c). The estimated value of transfer to a family with two children in 1991 was $118. In 1991, 2.3 million urban and 600,000 rural families participated in the program. Information on leakage and coverage is available for 1988. Leakage to higher income families was about 40 percent of benefits, in part because of bribes to social workers and outlet personnel. Of beneficiary households, 65 percent have earnings under 1.5 minimum wages. Before 1991, in regions where the program existed, 65 percent of the target population was reached, but nationwide coverage was estimated at only 50 percent, primarily because of limited distribution to rural areas. In 1991, the government more than tripled its rural coverage. Another important reason for undercoverage is that the very poor cannot afford milk even at the subsidized price.

These programs illustrate a number of points relevant to the health sector. Like milk, some people cannot afford even subsidized health care. Another similarity between nutritional subsidies in Mexico and developing country health services is the bias towards urban populations, both because urban areas are comparatively easy and inexpensive to serve, and because urban residents exert disproportionate political influence. Another parallel is the importance of inconvenience (in terms of both time and distance) as a self-selection mechanism; depending on whether leakage or undercoverage is a greater problem, health programs can seek either to exploit or minimize the effect of inconvenience on the demand for health care and exemptions. The rent-seeking behavior of social workers and outlet personnel in the nutrition programs has also been observed when health fees are charged and official or unofficial exemptions are possible. Finally, the case of Mexican food subsidies also raises the issue of administrative feasibility of means testing in the health sector. In places where programs such as these operate, means testing is demonstrably viable, especially since the government already has extensive knowledge about peoples' incomes, and thus their abilities to pay for health services. Regardless of the existence or lack of functioning means-testing apparatus and prior experience, means tests for health services need not be nearly as elaborate as the ones aforementioned. Grosh points out that means tests are "frequently thought to be infeasible" and that "[t]he reluctance to use them is based on the fear that they may require more organizational, administrative or logistical capacity than many programs can realistically muster, even with adequate administrative budgets." She goes on to say that although "highly accurate, sophisticated means tests may well be too hard or too expensive for developing countries," a wide range of means-testing options exists, and "less precise, simple means tests may be a workable option."

Columbia, Student Loans (Grosh, 1992a). Columbia's student loan program illustrates the importance of self-selection on two levels: the pool of potential beneficiaries is defined by the pool of university students and the subset of those students who apply for loans. Furthermore, in keeping with the program's policy objectives, benefits are targeted on the basis of academic performance as well as ability to pay.[28] Financial need is evaluated according to family income, family size, and the occupations and educational attainment of parents. Because of relatively developed infrastructure (e.g., compared to Africa) and the characteristics of the target population, income tax returns can be used to verify information provided by applicants.

The incidence information for this program is highly detailed, permitting one to differentiate between the effects on targeting outcome of three different factors: the characteristics of the candidate pool, self-selection (deciding whether or not to apply), and the means-testing process. "Compared to other student loan programs in Latin America, Columbia's has relatively tough terms (such as short repayment period, no grace period and lower than average default rates)," making the decision to apply relatively unattractive to people who do not truly require the loan to attend university. Indeed, self-selection was found to be the most progressive of the three influences on targeting outcome, though the means test also made the program more progressive than if benefits had been randomly distributed to applicants. Standards for what constitutes progressive incidence and unacceptable leakage to the non-poor must be interpreted in the context of the program's target population and

[28] In Jamaica, the student's major course of study is also considered in determining eligibility for government loans (Baker, 1992b).

objectives. "By its nature, the program is designed to serve a population that is, on average, very well-off... [The loan program is] somewhat regressive compared to the general population, although it is progressive when compared to the potential candidate pool."

Chile, Cash Transfers (Grosh, 1992a). Chile's Caracterizacion Socio Economica (CAS) is an umbrella program providing a variety of cash transfers according to various eligibility criteria. The CAS program uses a single means test to determine eligibility for several subprograms and its means test, though formally administered, is based on proxies. Eligibility for a family subsidy, old age pension, and housing subsidy are all determined using the CAS means test. Although CAS is overseen by the Ministry of Plan, management is carried out largely by municipalities. When the program was first launched, a concerted outreach effort was made, and "[s]ocial workers reached near census level coverage in the areas of the country where poverty maps showed the poor to be concentrated." Social workers visit the homes of potential beneficiaries to gather and verify information on household characteristics. A standard evaluation form is used and responses are plugged into a fixed formula to determine eligibility for each of the three programs.

When CAS started, the evaluation form was very simple, gathering information on 14 variables, including location, housing characteristics, educational attainment, and labor activities of household members. On the form, a score appeared next to each possible response (e.g., in answer to the question about what kind of cooking fuel is used, a response of gas or electricity received four points, coal or paraffin, two, and wood or other, zero). The social worker totalled the score at the end of the interview, thereby informing applicants on the spot of programs for which they qualified. Additionally, if a household qualified for one or more programs, social workers explained what benefits were available as well as the application procedure. "The interview, therefore, helped to lower both leakage and undercoverage." An evaluation of the program found that people could easily use prior knowledge of the application form's simple formula to bribe social workers into falsifying information to qualify for benefits. In 1987, the process was revised, and the evaluation form now includes additional questions on income and wealth, participation in other social programs, health, and education. Scores are no longer calculated in the field; instead, sophisticated computer programs calculate scores and determine eligibility.

A total of about 1,100 people work on CAS, most part-time, and the estimated cost per evaluation is about $5. The economies of scope of using a single means test for multiple programs improve efficiency. Incidence is excellent, with 72 percent of family subsidy benefits and 62 percent of pension benefits accruing to the poorest 30 percent of the population. Incidence is understandably somewhat lower for the housing subsidy because of self-selection.

Bangladesh, Nepal, and Pakistan, Agricultural Credit (Levine et al., 1992). Agricultural credit programs in Bangladesh, Nepal, and Pakistan have had mixed success at using local authorities to identify low-income households in rural areas. Usually credit is offered on concessional terms, and the target group is landless laborers, small farmers, or both. Although evidence on leakage, incidence, and coverage is scanty, loans seem to go to the target group "in the vast majority of cases." There are wide discrepancies in income and welfare within the target group, however, and program benefits seem to "accrue disproportionately to [those] toward the upper range of eligibility—the small farmers rather than the landless workers." This is probably

due in part to self-selection or farmers' greater ability to meet minimum collateral requirements.

Sri Lanka Food Stamps (Levine, 1992; Glewwe and van der Gaag, 1988). In 1979, the Sri Lanka government replaced its general food subsidy with a means-tested food stamp program, thereby cutting government food subsidy expenditures in half and reducing the number of beneficiary families from 13 million to seven million. Although the change in targeting strategy undoubtedly reduced leakage, new problems were introduced, namely identifying poor households in a vacuum of accurate income information. For example, a large portion of estate workers—whose incomes are more easily documented than those of workers in other sectors—are denied benefits although there is evidence that many estate households need subsidized food and many of the food stamp recipients have higher incomes. Another problem is that eligibility is not updated continuously, making it much easier to be removed from program rosters than to get on them. "If households lose sources of income or family needs increase, they cannot gain access to the program. Occasionally, a family is dropped from the food stamp rolls if neighbors report that their status has markedly improved. While this may keep administrative costs relatively low, it increases the chances of mistargeting benefits."

Kenya, Secondary School Fees (Huber et al., 1989). On the basis of estimated need, the Ministry of Education allots each school a fund for school fees of students who cannot afford to pay. The fee waiver application asks information about ages, occupations, and earnings of all family members, number of children in school, and total amount of school fees for siblings. Upon receiving an application, a school contacts the Children's Department of the Ministry of Home Affairs in the applicant's home district. The Children's Department "investigates and provides the school with information that guides decisions on individual cases." The decision of who is eligible to receive funds and the size of awards is made by each school's board of governors, comprised of the head teacher, the local district officer, and representatives of the Ministry of Education.

Kenya, Social Services (Huber et al., 1989). The Department of Social Services (DSS) in the Ministry of Culture and Social Services operates a social welfare program intended to address the basic needs of vulnerable groups including the destitute, widows, orphaned or abandoned children, and the aged. Cash transfers are given to pay for school fees, vocational training, home improvement, and care for orphans and the aged. Within each district, the process for qualifying for assistance is headed by a DSS administrator who oversees a multi-layered network of administrators and locally-recruited social workers. Social workers solicit the help of local leaders to investigate the backgrounds of households applying for assistance. Information is sought on the number, ages, occupations, earnings, and whereabouts of all family members. A high-level DSS administrator and representatives of various non-governmental agencies form a district-level committee, which reviews and decides upon social worker recommendations about who should receive assistance.

3.2.1.3 Health Programs with Means Testing

Finally, we examine health programs whose targeting strategies include means testing. Two of the programs described are from Latin America, two from Asia, and three from Africa. Although only 12 of the 41 health programs surveyed were limited to hospitals, all but three health sector means tests for which detailed descriptions

were available (Senegal, Zimbabwe, and Kenya) applied strictly to hospitals. This imbalance may reflect the relative abundance of documentation on hospitals, the relative importance of means testing in hospitals (because potential leakages are high), or both.

Belize, Hospital Services (La Forgia, 1992b). Fees for government hospital services have been in place nominally in Belize since 1958. General visits, emergency care, and various types of care to specific populations (e.g., pregnant women, schoolchildren, low-level civil servants), are free of charge either officially or general practice. A sliding scale of fees applies to most inpatient and some outpatient services, including drugs and diagnostic tests. Patients are classified into five income categories with corresponding fees (patients with private insurance constitute a sixth category). "There is some confusion regarding who is exempt from paying fees" because of the complex system of fees and income categories.

"The screening mechanism consists of a simple household income declaration by the patient. In most cases, it consists [solely] of questions about the employment status and earnings of all adult members of the patient's household." Means tests are conducted by facility clerks who are under the management of medical records officers. Interviews are conducted in the waiting area for outpatients and bedside for inpatients. During the interview, clerks complete a form classifying the patient into one of the five categories. No attempt is made at independent verification of information provided by the patient. After the interview, the form is maintained in the patient's permanent medical records. Means-testing costs are low because testing is brief and conducted by clerks with other duties.

In practice, the means test neither protects the poor nor allows substantial revenues to be collected from those who are able to pay. One reason for its lack of effectiveness is that fees and income categories have not been updated in over 25 years,[29] and today most patients fall into the highest income category (Category I). Another reason the means test is ineffective is lax enforcement of the procedures. In practice, most paying patients are charged Category II fees for most services and Category I fees for x-rays and laboratory tests. Although patients are supposed to pay for drugs, they are provided free of charge. Thus, the fee structure is effectively flat, despite the alleged sliding scale.

Exemptions are granted inconsistently between and within hospitals. Compared to the national hospital, higher percentages of inpatients at the two other hospitals studied pay something (100 and 50 percent), in spite of significantly lower average incomes in those districts. "Housewives and retired persons might respond that income is zero even though they live in a household with substantial disposable income." Clerks inconsistently "probe for a more accurate statement of household (as opposed to personal) income" and exemptions are granted for simply declaring that one is a government worker, with no verification. "In all facilities, fees often are waived for relatives and friends of facility staff.... The clerks who are responsible for applying the means test are uncomfortable with their gatekeeper role, resist pressuring the patients, and view the entire process as a burden.... Denying services to an individual can result in accusations of favoritism or discrimination."

[29] At present, government fees are a minute fraction of fees charged in the mission and private sectors.

Dominican Republic, Hospital Services (La Forgia, 1992b; Grosh, 1992a). As in Belize, means testing for hospital services in the Dominican Republic is ineffective at differentiating patients by ability to pay, although indigent policy is decentralized in the Dominican Republic. Fees and exemption procedures are determined by each hospital. In general, the system of fees and waivers is fairly loose, and patients do not know the fees, exemption guidelines, or likelihood of receiving a waiver if they apply. After receiving a physician's order for a diagnostic test or procedure, outpatients must show a receipt or a signed waiver before further medical services are rendered.

Social workers interview patients who request waivers to determine eligibility, typically either for a full or half-price exemption. Although some hospitals use evaluation forms which are kept on file, there are no fixed criteria for determining ability to pay or amount of payment. Because eligibility is primarily up to the social worker's discretion, the fee waiving process "more closely resembles a bargaining process than an investigation" (Grosh). Patients who apply for fee waivers are interviewed "in a crowded and chaotic environment—in the midst of numerous onlookers who interject comments on the negotiation process," making the process "quite arbitrary and somewhat dehumanizing" (La Forgia). Both stigma and inconvenience—applying for a waiver often takes one to three hours—pare down the number of beneficiaries to as few as 10 percent of all patients. (There is great variation between facilities, with up to 90 percent of patients receiving waivers in some places.) An unanswered question is, to what extent do these self-selection mechanisms reduce leakage, and to what extent do they reduce coverage by discouraging poor people from requesting waivers or even seeking care in the first place?

The targeting experience in Dominican hospitals differs markedly from that in the Dominican public health program. It is not too surprising that the public health program achieved greater targeting success, given that it was designed specifically to serve a needy population, many of whom are easily identifiable (e.g., pregnant women).

Korea, Hospital Services (Levine et al., 1992). In contrast with the other countries surveyed, most health care in South Korea is provided through the private sector (about 95 percent of all health facilities and 72 percent of all physicians are in the private sector), government hospitals are financed predominantly through user fees, and the government expects private providers to bear some of the burden of providing indigent care. In 1977, a centralized medical assistance program was established to pay the health expenses of the poor. The program has formal eligibility criteria and a sophisticated structure (*see Exhibit 3-3*) with three classes of beneficiaries and subsidies varying by beneficiary class, residence, and type of care. Zero-interest loans are available to finance care beyond the limited number of outpatient visits and hospital days for which waivers apply. Beneficiaries accounted for about 11 percent of the total population in 1985-86. Under the medical assistance program, most indigent inpatient care is provided by government hospitals, but private physicians provide a substantial portion of outpatient care, "receiving fees estimated to be about half the market rate."

Thailand, Hospital Services (Mills, 1991; Levine et al., 1992). Like Korea, Thailand initiated a formal medical assistance program in 1975. Government hospitals in Thailand recover about half their costs through user fees for drugs, medical tests

Exhibit 3-3 Hospital Exemptions in South Korea

	FIRST CLASS BENEFICIARIES	SECOND CLASS BENEFICIARIES			THIRD CLASS BENEFICIARIES		
		Large Cities	Small Cities	Rural Areas	Large Cities	Small Cities	Rural Areas
CRITERIA	The chronically ill & those living in public institutions (easy to identify)	Public assistance recipients, i.e., monthly income in won below: 42,000 ($50)	38,000 ($45)	34,000 ($40)	People whose income is above the public assistance cut-off but who satisfy strict income or asset requirements for medical assistance only		
BENEFITS							
Outpatient (limited no. of visits)	Free	<---------Free--------->			<--------33% waiver----->		
Inpatient (limited no. of days)	Free	50% waiver	<--80% waiver-->		40% waiver	<--60% waiver-->	
Beyond Limit	<----------Zero-interest loans---------->						
NUMBER OF RECIPIENTS (1985-86)	643,000	1,819,000			~ 2,000,000		
% OF POPULATION (1985-86)	1.5%	4.4%			~ 5%		

and procedures, and inpatient room and board. Until 1980, eligibility for exemption was determined by the head of each facility. Budget allocations which favored better-off regions and varying eligibility criteria meant that poor people in different regions faced widely different chances of receiving care free of charge. Starting in 1980, medical cards entitling the bearer to free care were issued to people with monthly incomes below a cut-off of $66 for individuals and $87 for families. Cards are distributed by local authorities and are valid for three years, after which time it can be renewed if eligibility criteria are still met. It is not known whether, or the extent to which, cards are sold or lent to those not eligible for free services. About one-fifth of the population, or 11 million people, held cards in 1985. In 1986, the total cost of the program was $26.25 million or four percent of the Ministry of Health budget. "It is estimated that hospitals provide twice the amount of free services that would be accounted for only by card holders, indicating that additional informal subsidies [i.e., leakage] are being provided."

Senegal, Hospital and Clinic Services (Vogel, 1988). During the 1980s, the Senegalese government initiated widespread cost recovery for both primary health and hospital services, with user fees far below private sector prices for modern care.

In 1980, when the government introduced fees in primary care facilities, local communities were given discretion in setting fees and granting fee waivers. The government proposed a fee schedule with higher fees in urban areas than rural areas and higher fees for adults than children. Government guidelines also suggest waiving fees for the physically or mentally disabled, people with certain chronic illnesses, and people requiring emergency care. In addition to these exemptions, exemptions are suggested for people falling into a long list of "special case" categories, including municipal employees and officials, police, students, and government medical personnel. The net effect of these "special case" exemptions is regressive.

In 1986-87, hospital cost recovery was introduced, starting in three regional hospitals and then expanding to other hospitals. This cost recovery effort "represent[ed] an effort to further refine the definition of indigence, in the face of the hospitals' financial difficulties." The hospital cost recovery initiative was intended to gather revenues from most of the patients who had previously been treated as indigent, while maintaining free care to those truly unable to pay. Certification of indigence by local government authorities was now required to receive fee waivers for hospital services. Exemption practices varied considerably by hospital. The generally encouraging cost recovery progress indicates that at least some leakage was reduced, though leakage is still estimated at around 50 percent. Health officials felt it was easier to discriminate between those able and not able to pay in rural areas than in urban areas because of greater common knowledge about other peoples' incomes in villages than in cities.

Zimbabwe, Hospital and Clinic Services (World Bank, 1992; Barnum and Kutzin, forthcoming). As in Senegal, user fees are charged for government health services, and cost recovery is weak, with high leakage and ineffective targeting. Because of lax fee collection, user fees do not seem to act as a significant barrier to access for the poor, but those who can afford to pay frequently do not seriously constrain the health system's ability to serve the poor, particularly in rural areas. The failure to collect fees from those who are able to pay for health services is due to a number of factors. First, in contrast to Senegal, there is a clear, centrally-established eligibility cut-off (monthly income of Z$150), but it has not been revised since it was set in 1980, despite inflation. Facilities lack motivation to collect fees because fees are so far below costs that fee collection hardly seems worthwhile.

Second, facilities lack information on patients as well as administrative capacity to enforce payment. This is more of a problem in rural areas, where the burden of proof of ability to pay is on the facility. Almost no one in rural areas receives a monthly wage with written pay slips, so a patient can receive an exemption simply by giving an uncontestable verbal declaration of low income. Thus, everyone apart from school teachers and civil servants is routinely exempted from payment, including a number of people with incomes above the established threshold. In a small number of central hospitals and municipal facilities, the burden of proof of indigence is on the patient. Not surprisingly, cost recovery is better in these facilities, where patients applying for exemptions may be required to provide evidence of low income such as pay slips or a letter from a local government agency. Nonetheless, even at central and regional facilities, few patients bring such documentation, and in practice, facility clerks decide whether or not to exempt patients.

Kenya, Non-Government Facilities in Nyanza (Huber et al., 1989). The Kenyan facilities for which means-testing procedures are described differ from the other African facilities in that they are not run by the government. Despite the fact that non-government health facilities in Kenya often charge fees much higher than those proposed (and then revoked and re-introduced) for government facilities, most non-government facilities collect fees from all but a small percentage of patients. The differential exemption and cost recovery rates might be due to higher

average patient incomes at private facilities than at government facilities. Whether or not this is the case, private and mission sector means-testing experience will be instructive in the event that user fees are reinstituted in government facilities.

Information on exemption policies and procedures was gathered in a survey of 13 non-government facilities providing a mix of outpatient and inpatient services in South Nyanza, a region with notably poor health indicators. Although the facilities use somewhat different means-testing procedures, some generalizations emerge. Flexible, informal procedures are used to identify patients who are unable to pay, and factors other than income are often considered: fluctuations in household income, recent medical expenses of the household, the patient's illness, physical or mental disability, location of residence, physical appearance, marital status, age, and number of visitors (for inpatients, the number of visitors is believed to be correlated with potential financial support from extended family). Information to assess ability to pay comes from the patient, facility personnel assessment, and community leaders. "The most common method is to verify a family's inability to pay through local officials or religious figures." Waivers or deferrals are granted by facility medical personnel, sometimes with the assistance of a social worker "employed to assess ability to pay or look into the patient's background."

In addition to a small number of full exemptions, at most facilities, partial exemptions or deferred payment is sometimes granted. Several facilities withhold a portion of prescribed drugs until full payment is received. Unlike the situation elsewhere (e.g., at government facilities in Zimbabwe), most of the Nyanza facilities report that patients rarely seek exemptions on the basis of low income. Exemptions or deferrals, though rare for all services (fewer than five percent of inpatients pay nothing), are even less frequent for outpatient services. The differential tendency to waive fees by type of service probably reflects the greater financial burden of hospitalization rather than shoddier means testing of inpatients. In fact, it is felt that means-testing procedures are "less effective for outpatients than for inpatients since there is less time for observation and gathering information, and the fee does not justify the cost of collecting information."

The means-testing experiences in Nyanza should prove useful given the recent decision to reinstitute user fees for government health services. Furthermore, the Ministry of Health may be able to take advantage of the means-testing methods and administrative networks used by the Ministry of Culture and Social Services (*see Section 3.2.1.2*).

3.2.2 Discussion and Conclusions

These descriptions, along with the information in Exhibits B-1 through B-3, illustrate the great variation in means-tested programs along the following dimensions:

- **Documentation**: Records of means-testing procedures, costs, and impact tend to be either qualitative and vague, or non-existent. Because it is difficult to compare programs using available information, it is also difficult to conclusively isolate determinants of successful means testing.

- **Accompanying Targeting Mechanisms**: Means tests tend to be combined with some other targeting device(s), depending on the program. Specifically, self-selection plays quantitatively and qualitatively different roles in different cases. If characteristic targeting has already narrowed down the applicant pool (appropriately or inappropriately), the group of applicants is probably made more homogenous, and thus differentiating among patients on the basis of ability to pay becomes more difficult.

- **Administration**: The administration of means tests varies considerably in terms of level of administration, whether or not beneficiaries are centrally registered, measures taken to verify information, and how much discretion those conducting tests have in classifying applicants. As expected, verification measures were observed when costs were low (e.g., home visits in poor, urban neighborhoods in Latin America) and when program benefits, and thus potential leakage, were high (e.g., health insurance, inpatient care, or standing exemptions for outpatient care).

- **Means-testing Costs**: Specific cost information on means-tested health programs was available in only three cases, all in Latin America (hospital services in Belize and the Dominican Republic and health insurance in Costa Rica). In all three cases, targeting costs were reported to be quite low (under four percent of operating costs), but it should be noted that means testing in the two hospital sectors was somewhat of a farce, and that most people in Costa Rica are already insured through other channels, making the program's applicant pool both small and predominantly poor. In a general survey of targeted programs in Latin America, Grosh (1992a) found that "[t]he cost range for [means tests] is much greater than for the other mechanisms, but simple [means tests] are no more costly than other options and, indeed, the median costs... are little different than for the other mechanisms." The variation in costs and outcomes signifies the strong influence of conditions under which means tests are conducted.

- **Outcomes**: Even for similar programs and facilities, there is great variation between and within countries in the percentage of patients classified as indigent—greater variation than differences in actual socioeconomic composition warrant. Grosh (1992a) found that the range of incidence (percentage of benefits accruing to the poor) varied more in means-tested programs than in other targeted programs, "with 59 to 83 percent of benefits going to the poorest two quintiles. The median was 73 percent." When means testing and fee collection unravel or fail to take hold in the first place, it is sometimes because exemption criteria and payment categories have become outdated or never were effective at meaningfully differentiating patients by ability to pay (e.g., Belize and Zimbabwe). Differences in outcomes arise not only from different screening characteristics, but also from differences in governments' or facilities' commitment to cost recovery. As Grosh points out, "weak implementation of these fee waiving mechanisms may reflect some ambivalence toward the whole notion of charging fees" (1992a). Further, "[t]he success of means testing often depends on the incentives provided to the administering agents. If a facility does not retain user fees and therefore has no incentive to collect fees, the facility personnel may classify all patients as indigent" (Levine et al., 1992).

- **General Environment and Conditions**: There are many context-specific considerations which affect the optimal design and impact of a means test. One such factor is whether modern health services are available through the private sector, and if so, at what price. Through self-selection, private services usually reduce the proportion of better-off patients seen at government facilities. In a setting like rural Niger, however, where there are effectively no private services (Diop, 1993), effective means testing becomes crucial if the government is to provide reasonable health services, achieve a modicum of cost recovery, and protect the poor. On the other hand, a Type I error (denying a poor person a fee waiver) has more serious welfare consequences when alternative services do not exist.

Additional insights can be gleaned by looking at summary data of the means-tested projects surveyed. Exhibit 3-4 provides an overview of the 48 programs by region, additional targeting mechanism, means-testing characteristics, and whether the program was judged successful by evaluators or by the subjective impression given in evaluation reports. The first point which emerges from the exhibit is that all nine programs deemed successful, with the exception of health services in Ethiopia, were in Latin America. This underscores important regional differences in means-testing conditions and outcomes. Social welfare programs in Latin America are much more likely to have formal, written, or centralized application processes and administration than those in Africa.

All nine successful programs employed characteristic targeting, self-selection, or both. Similarly, Levine et al., 1992, found that "[s]uccessful experiences in means testing appear to have depended on multiple criteria, with one of the criteria being a direct measurement of income." All but one of the 29 programs classified either as successful or unsuccessful which had informal criteria or allowed significant discretion in applying criteria were unsuccessful (the exception being health insurance in Costa Rica). Of the means tests which were classified on the basis of success and which were administered by personnel at health facilities or stores, 15 out of 17 were unsuccessful (the exceptions being food stamps in Peru and health insurance in Costa Rica). Another factor which seems to signal unsuccessful means testing is an indefinite or permanent exemption period; 12 of 14 programs which allowed standing exemptions were classified as unsuccessful and none classified as successful. Of 23 instances in which routine measures were taken to verify applicant information, 12 were in successful programs and two were in unsuccessful programs. (Some programs used more than one verification measure; for example, the instances of home visits and data sharing associated with lack of success both come from the Jamaica food stamp program.)

Exhibit 3-4 Characteristics of Means-Tested Programs Surveyed[30]

	ALL 48 PROGRAMS	9 SUCCESSFUL PROGRAMS	20 UNSUCCESSFUL PROGRAMS
REGION			
Latin America	22	8	6
Asia	11	—	6
Africa	16	1	8
ADDITIONAL TARGETING MECHANISM			
Characteristic	24	7	12
Self-Selection	30	5	16
CRITERIA			
Income	25	5	11
Proxy	12	2	3
FORMALITY			
Formal	22	7	4
Informal	15	1	10
ADMINISTRATION			
Facility or Store	22	2	15
Local	18	6	2
Central	12	4	1
PERIOD OF EXEMPTION			
Indefinite	14	—	12
Periodic	8	5	1
VERIFICATION			
Home Visits	10	6	1
Data Sharing Between Social Services	10	5	1
Wages or Tax Records	3	1	—

[30] The format of this table closely follows that of Appendix Exhibit 7.1 in Levine et al., 1992.

Although impressionistic, these data support the expectation that greater means-testing effort yields greater success. The survey of targeting experience in Latin America referred to earlier substantiated the hypothesis that more rigorous means testing implies greater cost; within classes of targeting mechanisms (e.g., means testing), there was an inverse correlation between targeting costs and leakage. The study also found "very large returns to targeting expenditure" (Grosh, 1992a).

In conclusion, the general lesson to be learned from previous targeting experience is that means testing should be tailored to local conditions, both in terms of population characteristics and existing means-testing capacity. Another important conclusion is that there is little information (especially quantitative information) about leakage, incidence, coverage, and costs of targeting in general or means testing in particular—or about the interrelationships between these variables. As Levine et al. assert, "The state of knowledge in what is one of the most important issues in the social sectors—targeting public subsidies—is chaotic and totally inadequate for the requirements of good public policy." Fortunately, policymakers and researchers are paying increasing attention to this issue, and the body of knowledge about targeting and means testing is growing. On that note, a proposed agenda of HFS research in this area is now discussed.

4.0 PRELIMINARY DESIGN OF FIELD RESEARCH

One of the chief purposes of this paper is to provide the conceptual foundations for the design of field research to be conducted by HFS in the areas of means testing and equity. Given the dearth of research on means testing in developing countries, particularly in the health sector, the type of research that is most needed is basic observation of existing means-testing schemes and measurement of costs, accuracy, tradeoffs, and impact on equity of various means-test features (i.e., criteria and administrative structures). Although little developing country research has been done in the area of means testing, there is no inherent reason that such research could not or should not be done, especially given its practical importance.

Fortunately, HFS has numerous opportunities to conduct means-testing research at relatively low cost in countries where HFS is already working. This section proposes five means-testing studies and provides background information and preliminary research designs for these activities. Whether all five of the proposed studies will be conducted will depend in part upon the resources available as well as on methodological considerations discussed later. The proposed studies are of the following:

- Government non-hospital facilities in Niger;
- Hospitals in Niger;
- Private voluntary facilities in Haiti;
- Church-related facilities in Kenya, and
- Facilities in Benin (retrospective study).

4.1 GOALS AND OBJECTIVES

The goals of the five studies are as follows:

- To document existing means-testing practices;
- To measure and compare costs, accuracy, and effects on equity of different means-testing methods;
- To compare means-testing practices, costs, accuracy, and effects on equity between non-hospital facilities and hospitals, between government and private facilities, between urban and rural facilities, and between countries;
- To make recommendations about the design and management of means-testing procedures and evaluation, and
- If possible, to gather information on costs and effectiveness of other targeting methods so that comparisons and recommendations include a broader range of mechanisms for achieving the social policy goal of protecting the poor.

More specific study objectives are to answer the questions presented in Exhibit 4-1. Each objective is listed as a question under the goal to which it corresponds.

4.2 THE CHOICE OF STUDIES

In deciding upon the package of studies to conduct, HFS and USAID should consider the different types of information provided by each study. Although the goals and objectives of the five studies overlap considerably, the studies have different scopes and methodologies. Consequently, not every study will be able to address all of the questions outlined in Exhibit 4-1. In particular, Goal #3, which concerns comparisons of means testing in different settings, will be met by only a subset of the studies or by combining findings of more than one study. When appropriate, similar data collection instruments (based on Exhibit 4-1) should be used in different studies to ensure comparability of results.

Another important consideration is each study's ability to assess a means test's accuracy and its effect on equity, particularly if means tests are observed amidst changes such as the introduction of cost recovery. In-depth exit interviews of patients or household surveys can be used to evaluate the accuracy of a means test (although patients may be almost as likely to provide underestimates of their socioeconomic status to researchers as to the agents who administered the means test). Separating the impact on overall equity of the means test from other factors such as self-selection requires a household survey of the general population. Through the survey, information can be gathered not only from patients but from those who did not seek health care from the means-tested facilities. Household surveys include information on socioeconomic and health status, and public knowledge of exemption policies and procedures. Exhibit 4-1 indicates which research objectives require information from the general population. In general, the following data collection methods are appropriate for collection of the following types of information:

- Facility surveys and observation—practices and costs;
- Exit interviews of patients—accuracy (especially leakage and incidence);
- Household surveys—equity and accuracy (especially undercoverage), and
- Studies of different types of facilities or combinations of studies—comparisons of practices, costs, accuracy, and equity.

Exhibit 4-2 summarizes basic information about the scope and data collection methods of the five proposed studies.

Exhibit 4-1 Objectives of Proposed HFS Means-Testing Studies, Organized by Study Goal

GOAL #1: TO DOCUMENT EXISTING MEANS-TESTING PRACTICES

- What criteria are used to determine eligibility for exemption? How were the criteria decided upon and by whom?
- Is the means test administered centrally, locally, or at the facility? Do means-test administrators face constraints on the number of exemptions they grant? How often is the means test administered? Are there quality control checks?
- * Are the exemptions and means-testing criteria widely understood by potential beneficiaries?
- Who can fulfill the means test? Must it be the head of household? Is literacy required?
- Are partial exemptions ever granted? If so, how is the determination of how much a semi-indigent patient pays made?
- How uniformly is the means test applied over time, by different agents, to people with different socioeconomic characteristics, and to different types of patients?
- Does a patient's exemption status affect the type of medical treatment provided by the facility?

GOAL #2: TO MEASURE AND COMPARE COSTS, ACCURACY, AND EFFECTS ON EQUITY OF DIFFERENT MEANS-TESTING METHODS

- How much does it cost to gather information on various criteria? How are costs broken down by personnel time, recordkeeping supplies, etc.? What costs are borne by patients?
- * How accurate is the information, i.e., what levels of Type I error and Type II error are achieved?
- What are relative costs and accuracy of implementing means tests by different types of agents (local, facility, central)?
- How are costs and accuracy affected by population characteristics (e.g., literacy) and the institutional environment (e.g., communications and transportation infrastructure)?
- Does the means test contribute to equity of the overall program, i.e., are the poor more likely to seek and receive care as a result of means testing?
- * What is the cost of the program in revenues foregone? How much of this cost is due to benefits being wrongly awarded to the non-poor (i.e., Type II error)? What is the monetary value of benefits that were incorrectly denied (Type I error)?
- What is the ratio of costs of administering the means test to costs of benefits?

GOAL #3: TO COMPARE PRACTICES, COSTS, ACCURACY, AND EFFECTS ON EQUITY OF DIFFERENT TYPES OF FACILITIES AND DIFFERENT COUNTRIES (*See Objectives under Goals #1 and #2.*)

- Compared to non-hospital and rural facilities, are hospitals and urban facilities more able to take advantage of means tests administered centrally and by programs in other sectors?
- How do means-testing practices and outcomes differ between the government and private sectors? Does one seem more equitable than the other? How do practices and outcomes in one sector affect practices and outcomes in the other sector?
- How do means testing and exemption practices at one level of the health system affect utilization at other levels? Are means testing and exemption practices consistent at different levels (e.g., at least as stringent at hospitals as at non-hospitals)?

GOAL #4: TO MAKE RECOMMENDATIONS ABOUT THE DESIGN AND MANAGEMENT OF MEANS-TESTING PROCEDURES AND EVALUATION

- * Which features (criteria, administrative structure) of a means test increase coverage (reduce Type I error)? Which features reduce leakage (reduce Type II error)?
- * Empirically, what is the cost tradeoff between providing program benefits and testing with accuracy? The technical tradeoff between reducing Type I and Type II error?
- * How well do criteria used in means tests correlate with other methods of identifying the poor such as household surveys?

GOAL #5: TO GATHER INFORMATION ABOUT RELATIVE COSTS AND EFFECTIVENESS OF OTHER TARGETING METHODS (*See Objectives under Goals #1-3.*)

- Is the means test used in conjunction with other targeting mechanisms? Which other mechanisms? What affect does this have on costs and effectiveness of targeting?

NOTE: * Answers to these questions should ideally come from household surveys of actual and potential beneficiaries (i.e., the general population).

Exhibit 4-2 Summary of the Five Proposed Means-testing Studies

STUDY	TYPE OF FACILITY						METHODS / COMMENTS
	GOVT	PRIVATE	NON-HOSPITAL	HOSPITAL	RURAL	URBAN	
NIGER (1)	X		X		X		Facility data, Household surveys, Low marginal cost
NIGER (2)	X	X		X	X	X	Facility data, Household surveys in Pilot Test areas, Requires sending consultant to field
HAITI		X	X	X	X		Facility data, Local PVOs eager to collaborate, Requires sending consultant to field
KENYA		X	X	X	X		Facility data, Local PVO eager to collaborate, Requires sending consultant to field
BENIN	X		X	X	X	X	Retrospective study, Facility data, Low marginal cost, UNICEF eager to collaborate

4.3 DESCRIPTIONS OF THE PROPOSED STUDIES

4.3.1 Study of Means Testing in Non-Hospital Facilities in Niger

4.3.1.1 Background

Niger is an ideal place for HFS to conduct case studies of means-testing methods for at least three reasons: HFS is already established in Niger with a long-term technical advisor working on the Niger Cost Recovery Pilot Project; under the project, the Government of Niger directly faces the challenge of protecting the poor under cost recovery; and household surveys already provided for under the project will enable HFS to study the effectiveness of means tests to correctly differentiate between the poor and non-poor. The Niger Cost Recovery Pilot Project is a major field activity testing cost recovery for curative outpatient care in two districts of that country. The project has been supported by AID, first through the Niger Health Sector Support Grant (NHSS), a non-project assistance grant, and more recently through the centrally funded HFS Project. Abt Associates Inc. has lead the design and implementation of the Pilot Project from its inception, first as a NHSS subcontractor and now as the HFS prime contractor.

The Pilot Project grew out of a proposal made at a NHSS-sponsored workshop on health care financing held in 1989. At the workshop, senior Government of Niger officials proposed testing different cost recovery mechanisms in different districts to assess the advantages and disadvantages of various alternatives before considering introducing cost recovery nationwide. (Health care in government facilities is currently free of charge, and Niger has very few non-government providers of modern health care.) A key problem identified at the workshop was underutilization of government health facilities due to chronic drug shortages. Under the Pilot Project, one district will adopt a fee-per-episode cost recovery system, and a second district will adopt an annual tax combined with a small copayment per illness episode, and the revenues generated will go towards paying for drugs. A third district will serve as a cross-sectional control site. During the tests, the Government of Niger is expected to maintain its current level of subsidization to health facilities in the test districts, including the payment of personnel salaries.

Cost recovery started in the roughly 20 health facilities of the test districts in May 1993. The two cost recovery systems are being evaluated using household surveys of the general population as well as monthly facility surveys. The recently completed baseline household survey will provide information about demand, equity, and quality of care prior to the introduction of cost recovery and will be compared with the second household survey, to be conducted one year after the baseline, when cost recovery is well under way. The two household surveys and the third control site give the test the very attractive feature of having both longitudinal and cross-sectional controls.

Funding from the NHSSG has been used to establish a central office (le Bureau Central de Suivi) to oversee the myriad activities of the Pilot Project. The entire project is expected to take place over a period of about two years and use about 5,000 person-days, or 227 person-months. These figures are based on the assumption that HFS provides the technical assistance required to manage the tests and evaluate the results. It is also assumed that HFS will use the tests to conduct major applied research in at least four major areas, one of which is means testing. The level of effort described for the project, therefore, would be shared by at least four major field research activities.

The Niger Cost Recovery Pilot Project offers a unique opportunity to conduct major applied field research for several of HFS's major applied research topics, including means testing. The household surveys will provide information on the extent of Type I and II error in the cost recovery programs, and the facility surveys can be easily modified to include information on the costs of means-testing efforts. Thus, the incremental data collection effort for studying means testing will be very small. To date, the project does not have a clearly articulated indigent policy or plan for conducting means tests. The most likely scenario is that each facility or locality will decide how it conducts means tests, whether village chiefs or other local authorities will be involved in determining indigent status, whether to adapt means-testing procedures over time, etc. This will provide the means-testing study with a variety of approaches to research.

Since health care and drugs, in principle, were previously provided free of charge in government facilities, it is not known how the introduction of cost recovery affects demand, particularly by the poor. If cost recovery permits improved availability of drugs, consumers will face both higher prices and higher quality of care, each of which has a countervailing effect on demand. Although no fees were previously charged and there is no centrally authorized means testing in non-hospital government facilities in Niger, it may be the case that informal means tests were applied at some facilities as a method of allocating drugs to patients. It is known that the small stocks of drugs given to facilities were dispensed by some sort of non-price rationing, possibly by informal means-testing mechanisms. One of the goals of the study is to document ad hoc means-testing procedures in control sites and find out what, if any, rules seem to guide providers' decisions.

4.3.1.2 Methodology and Workplan

The proposed study will be discussed in detail with the long-term HFS field advisor, François Diop, and MOH personnel. The first task will be to identify information needed to study means testing which is already being gathered through existing Pilot Project data collection instruments. Such information includes utilization of government health services, health expenditures, and price differences across income groups. It might also include incidence and leakage of benefits (as measured by both facility records and household level surveys). The second step will be to identify gaps which can be filled by adding a small number of questions to the household and facility surveys. For example, several questions seeking information on the public's knowledge and perception of exemption practices will be added to the follow-up household questionnaire. Households who sought care will be asked if they applied for an exemption, and this information will be combined with income and payment data to examine equity. In addition to facility information already being gathered from records and supervisory visits, exemption procedures will be observed, and information will be gathered on the amount of time personnel spend determining exemptions and proportions of patients seeking and receiving exemptions. Additional modest information-gathering efforts might be indicated as well, such as exit interviews of patients or interviews with local authorities if they are found to be enlisted in determining ability to pay.

Following the Pilot Project schedule, data collection will be completed in late 1994 and followed by data analysis and preparation of a policy-oriented report. The report will be circulated among MOH personnel and the results will be discussed in Niger during the workshop scheduled for after the completion of the project tests. The study will be managed by an HFS staff member, and data analysis completed by an HFS economist with input from both the HFS and local task managers.

4.3.2 Study of Means Testing in Hospitals in Niger

4.3.2.1 Background

Although cost recovery policy for the non-hospital sector is still being formulated, Niger has a long history of cost recovery in the hospital sector. Research by Weaver et. al. (1990b) shows that tariffs are applied with differing degrees of rigor in the eight government hospitals of Niger, suggesting possible differences in handling of the

poor among facilities.[31] Another study provides information about widely varying fee collection practices in government hospitals (Frederiksen and Garekam, 1991). In addition to the eight government hospitals, Niger has one missionary hospital (Galmi Hospital), which charges fees, grants exemptions, and has collaborated informally with Abt Associate's NHSSG advisors Marcia Weaver and Carla Willis in the past.

It is not known what the stated policies or actual practices are for granting exemptions in Niger's hospitals, or what the costs or accuracy are of means-testing practices. It would be extremely valuable to have such information for both the non-hospital and hospital sectors in Niger. This study would complement the study of means testing in Niger's non-hospital facilities by permitting comparison of criteria, procedures, costs, and accuracy of means tests at different levels of the health care system within the same country. Inclusion of the Galmi Hospital in the study would permit cursory analysis of differences between means-testing practices in government and private facilities and testing of the hypothesis that missionary and other private voluntary facilities have relatively efficient exemption mechanisms. Furthermore, this study would allow HFS to capitalize on its presence in Niger in the event that changes in the Nigerian government or government health financing policy interrupt the cost recovery Pilot Project.

4.3.2.2 Methodology and Workplan

At a minimum, informal conversations should be conducted with personnel at as many hospitals as possible to provide some documentation of exemption practices and problems. The long-term HFS field advisor will have easy access to two hospitals in Niamey and hospitals near the Pilot Project test sites. Galmi Hospital administrative personnel, including the director, visit Niamey periodically and are therefore accessible.

If resources permit, a more formal and thorough study should be conducted to quantify incidence and leakage of health benefits at various hospitals. Such a study would require facility surveys and possibly exit interviews of patients. In both cases, short data collection instruments would have to be designed and tested. The first step in conducting a formal study will be for the HFS field advisor to initiate dialogue with the MOH about the study's objectives and design. Once agreement is reached, an HFS economist or consultant would be briefed on the study and sent to Niger to collect data.

Surveys of a subset of Niger's hospitals, possibly including exit interviews of patients, could be conducted in a relatively short time. Following data analysis and preparation of a policy-oriented report, the report will be circulated among MOH personnel and hospital administrators (including Galmi). If the workshop agenda permits, the results will be discussed the Pilot Project workshop along with the results of the means-testing study in non-hospital facilities. The study will be managed by an HFS staff member. The collection and data analysis will be completed by an HFS economist or consultant with input from both the HFS and local task managers.

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[31] It is important to remember that generally lax application of tariffs does not necessarily imply that the poor escape payment. At Niamey National Hospital, Weaver et. al. (1990a) documented the systematic and perverse tendency to collect fees from poorer patients because poorer patients tended not to have friends or relatives working at the hospital.

4.3.3 Study of Means Testing in Private Voluntary Facilities in Haiti

4.3.3.1 Background

Various private voluntary organizations (PVOs) that receive funding from AID/Port au Prince and provide health and family planning services in Haiti also engage in some sort of cost recovery activity. Facilities managed or assisted by these PVOs grant partial or total exemptions to indigent patients using a variety of means-testing practices, most of which are probably informal. The following PVOs have expressed interest in collaborating on a study of means testing: Association des Oeuvres Privées de Santé (OAPS, an umbrella organization of private health providers), le Comité de Bienfaissance de Pignon, Eye-Care, International Planned Parenthood Port au Prince Field Office (PAPFO), and Centres Pour le Développement et la Santé (CDS). In mid-1990, HFS Health Economist Marty Makinen discussed the possibility of conducting research on means testing with these organizations. Specific areas of research discussed included the effectiveness of means-testing systems at identifying those who cannot pay for health services, documenting means-testing criteria, how well means tests compare with other methods of identifying the poor, costs of means testing (especially in terms of staff time), and costs of foregone revenues (leakage).

4.3.3.2 Methodology and Workplan

The first step in conducting the study will be to contact the Haitian PVOs to discuss study objectives, methods, and workplan. Once a workplan is agreed upon, an HFS economist or consultant would be briefed and sent to Haiti to develop data collection instruments and collect data. Upon completion of data analysis and report preparation, a policy-oriented report will be circulated among PVOs, participating facilities, and the MOH and its results will be presented and discussed at a short workshop in Haiti. The study will be managed by an HFS staff member and data analysis by an HFS economist with input from both the HFS and local task managers.

4.3.4 Study of Means Testing in Kenya

4.3.4.1 Background

In mid-1990, HFS Health Economist Marty Makinen discussed applied research needs with several agencies in Kenya, including Christian Health Association of Kenya (CHAK). CHAK is an umbrella organization for a number of rural health facilities including non-hospital facilities and small rural hospitals with large outpatient components. CHAK's Executive Director, James B. Khachina and Development and Projects Coordinator, Malcolm McNeil, expressed interest in collaborating with HFS on studies of fee structures and fee-waiver procedures. The financial status of church-related health services in Kenya has declined along with the overall economy, and the Government of Kenya has progressively cut grants to such services. The introduction of cost recovery in MOH facilities has led to increased utilization of church-related services, which are believed to be of higher quality than government services.

The trip report by Makinen (1990) states:

> [T]he church-related facilities fear that the need to raise fee levels to keep up with rising costs and diminishing subsidies eventually will have strong negative effects on utilization of services. They would like to have some assistance in looking at their fee structures and fee-waiver

> procedures... Waivers are currently granted according to differing methods by denomination and, sometimes, by facility. Usually the hospital administrator asks questions of those who are claiming to be indigent, then makes a decision based on his or her subjective evaluation of the answers. This results in wide variation in the fraction of patients granted waivers. No systematic study of waiver procedures or outcomes has ever been performed.

4.3.4.2 Methodology and Workplan

The first step in conducting the study will be to contact CHAK to discuss study objectives, methods, and workplan. Once a workplan is agreed upon, an HFS economist or consultant would be briefed and sent to Kenya to develop data collection instruments and collect data. Following data analysis and preparation of a policy, the report will be circulated among CHAK facilities and the MOH, and results will be presented and discussed at a workshop in Kenya. The study will be managed by an HFS staff member. The analysis of the data will be done by an HFS economist with input from both the HFS and local task managers.

4.3.5 Study of Means Testing in Benin

4.3.5.1 Background

In mid-1992, UNICEF expressed interest in collaborating with HFS on a study of means testing using data already collected from health facilities in Benin. All facilities included in the study engaged in some sort of cost recovery activity under the Bamako Initiative and used means testing to grant exemptions to indigent patients. An attractive feature of the Benin study is that it includes a mix of hospital, non-hospital, rural, and urban facilities (and possibly government and private facilities). Another advantage is low additional cost since data has already been collected and the study does not require additional field work. It is likely that the data includes more detailed information on costs than on incidence.

4.3.5.2 Methodology and Workplan

The study will be conducted entirely in the U.S. The first steps of the study will be to obtain the data from UNICEF and establish the sampling procedures and methodology used to gather information. The next step will be to ascertain which of the questions in Exhibit 4-1 the data can be used to answer. Finally, the data will be analyzed using econometric regression analysis and the results will be presented in a report that will be circulated among UNICEF, MOH, and facility personnel. As a possible follow-on activity (not included in the estimated level of effort), a workshop might be organized to discuss the study's results. The study will be managed by an HFS staff member. The analysis of the data will be done by an HFS economist with input from both the HFS and local task managers.

APPENDIX A A SIMPLE MODEL OF TARGETING WITH SPECIAL EMPHASIS ON MEANS TESTING

The following model is designed to explore the question, "what is the optimal amount of accuracy?" or put differently, "what is the most efficient mix of program benefits and targeting effort?" The model assumes a fixed budget, **B**, for providing benefits and targeting them to the poor. **B** can be used in three ways: to provide benefits to beneficiaries (program costs), reach the poor (a targeting cost), or exclude the non-poor (also a targeting cost). The policy objective is to maximize the amount of benefits transferred to the poor population.

The model distinguishes between the two types of accuracy in targeting (avoiding Type I error and avoiding Type II error) and assigns different costs to them. The input into the avoidance of Type I error (reaching the poor) is $\mathbf{X_1}$ or "outreach" and its unit cost is $\mathbf{P_1}$, whereas the input into the avoidance of Type I error (excluding the non-poor) is $\mathbf{X_2}$ or "screening" and its unit cost is $\mathbf{P_2}$. In the absence of any targeting effort, both $\mathbf{X_1}$ and $\mathbf{X_2}$ equal zero, and only certain poor (indigent) people benefit ($\mathbf{I_o}$) while a number of non-poor people benefit ($\mathbf{N_o}$).[32] The numbers of poor and non-poor beneficiaries, **I** and **N**, depend on $\mathbf{X_1}$ and $\mathbf{X_2}$ as follows:

$$I = I_o + aX_1;$$

$$N = N_o - bX_2.$$

With the subsidy per beneficiary given by **S** (with $\mathbf{S} \leq \mathbf{MC}$), total cost can be expressed as the sum of program costs and targeting costs:

$$TC = (I_o + aX_1 + N_o - bX_2)S + X_1P_1 + X_2P_2.$$

Notice that as $\mathbf{X_1}$ rises, **TC** rises as well due to two separate effects. For each unit of $\mathbf{X_1}$ added, targeting costs rise by $\mathbf{P_1}$, and program costs rise by **aS** as additional poor people are drawn into the program and given benefits:

$$\partial TC/\partial X_1 = aS + P_1.$$

On the other hand, the effect on total cost of increasing X_2 is ambiguous; targeting costs unambiguously rise but program costs go down as benefits are withdrawn from the non-poor:

$$\partial TC/\partial X_2 = -bS + P_2.$$

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[32] We assume that the price facing non-beneficiaries is equal to marginal cost. Thus, when a non-poor person is excluded, he or she either pays MC for health care, seeks health care in the private market, or goes without health care. The government is indifferent between these three outcomes because they are financially equivalent (since P = MC) and because any excluded non-poor person who opts to forgo care wasn't ill enough to have warranted treatment (since the benefit of treatment was less than the cost of treatment).

The difference between absolute welfare of the poor and relative welfare of the poor is important here. The objective of maximizing the absolute amount of benefits transferred to the poor (**SI**) is not consistent with strict equality. Given the objective of maximizing **SI**, the government should increase $\mathbf{X_2}$ only if the savings on benefits to the poor outweigh the costs of excluding the non-poor—and not for the sake of excluding the non-poor per se. Thus, if excluding the non-poor is very costly relative to the savings in incorrectly awarded benefits, it is possible that the optimal amount of $\mathbf{X_2}$ is 0. If the objective were strict equality on the other hand, $\mathbf{X_2}$ should be increased even at the expense of program benefits for the poor.

The government's problem is to choose $\mathbf{X_1}$, $\mathbf{X_2}$, and **S** to maximize total benefits transferred to the poor, **SI**, subject to the budget constraint **TC** $\leq$ **B**, or to differentiate the following Lagrangian with respect to **S**, $\mathbf{X_1}$, $\mathbf{X_2}$, and the Lagrangian multiplier λ.

$$\mathcal{L} = (I_o + aX_1)S + \lambda[B - (I_o + aX_1 + N_o - bX_2)S - X_1P_1 - X_2P_2];$$

(1) $\partial\mathcal{L}/\partial X_1 = aS - \lambda aS - \lambda P_1 = 0;$

(2) $\partial\mathcal{L}/\partial X_2 = \lambda bS - \lambda P_2 = 0;$

(3) $\partial\mathcal{L}/\partial S = I_o + aX_1 - \lambda(I_o + aX_1 + N_o - bX_2) = 0;$

(4) $\partial\mathcal{L}/\partial\lambda = B - (I_o + aX_1 + N_o - bX_2)S - X_1P_1 - X_2P_2 = 0.$

Rearranging (2) yields $S = P_2/b$. Substituting for S in (1) and solving for λ yields:

$$a\left(\frac{P_2}{b}\right) - \lambda a\left(\frac{P_2}{b}\right) - \lambda P_1 = 0$$

$$\lambda\left(a\left(\frac{P_2}{b}\right) + P_1\right) = a\left(\frac{P_2}{b}\right)$$

$$\lambda = \frac{\left(\frac{a}{b}\right) P_2}{\left(\frac{a}{b}\right) P_2 + P_1} = \frac{a\,P_2}{a\,P_2 + b\,P_1}$$

Substituting for λ in (3) and rearranging yields (5):

$$I_o + a X_1 - \left(\frac{a P_2}{a P_2 + b P_1}\right) I_o + \left(\frac{a P_2}{a P_2 + b P_1}\right) a X_1 + \left(\frac{a P_2}{a P_2 + b P_1}\right) N_o - \left(\frac{a P_2}{a P_2 + b P_1}\right.$$

$$\left(\frac{a P_2}{a P_2 + b P_1}\right) b X_2 + (I_o + a X_1)\left(1 - \frac{a P_2}{a P_2 + b P_1}\right) - \left(\frac{a P_2}{a P_2 - b P_1}\right) N_o =$$

$$X_2 = \frac{N_o}{b} - \frac{(I_o + a X_1)\left(1 - \frac{a P_2}{a P_2 + b P_1}\right)}{\left(\frac{a P_2}{a P_2 + b P_1}\right) b}$$

$$= \frac{N_o}{b} - \frac{(I_o + a X_1)}{\left(\frac{a P_2}{a P_2 + b P_1}\right) b} = \frac{N_o}{b} - \frac{(I_o + a X_1)}{b}\left(\frac{a P_2 + b P_1}{a P_2} - 1\right)$$

$$= \frac{N_o}{b} - \frac{(I_o + a X_1) P_1}{a P_2}$$

Rearranging (4) and substituting for **S** gives us:

$$B (I_o + N_o) S - X_1 (a S + P_1) + X_2 (b S - P_2) = 0$$

$$B (I_o + N_o)\left(\frac{P_2}{b}\right) - X_1\left(\frac{a}{b} P_2 + P_1\right) + \left[\left(\frac{N_o}{b} - \frac{(I_o + a X_1) P_1}{a P_2}\right)\left(b \frac{P_2}{b} - P_2\right)\right] = 0$$

$$X_1\left(\frac{a}{b} P_2 + P_1\right) = B - (I_o + N_o)\left(\frac{P_2}{b}\right)$$

$$X_1 = \frac{B - (I_o + N_o)\left(\frac{P_2}{b}\right)}{\left(P_1 + \frac{a}{b} P_2\right)}$$

Substituting this result for X_1 into (5) and solving for X_2 results in:

$$X_2 = \frac{N_o}{b} - \frac{\left(I_o + a\left[B - \frac{(I_o + N_o)\frac{P_2}{b}}{P_1 + \frac{a}{b}P_2}\right]\right)P_1}{a P_2}$$

$$= \frac{N_o}{b} - \frac{I_o P_1 + a B P_1}{a P_2} - \frac{\frac{a}{b}P_1 P_2 (I_o + N_o)}{a P_2\left(P_1 + \frac{a}{b}P_2\right)}$$

$$= \frac{N_o}{b} - \frac{P_1(I_o + a B)}{a P_2} - \frac{P_1(I_o + N_o)}{P_1 + \frac{a}{b}P_2}$$

These results can be used to express **I**, **N**, coverage (**I**/total number of poor), total transfers to the poor (**SI**), total transfers to the non-poor (i.e., leakage = **SN**), total program costs (i.e., total transfers = **(I + N)S**), total targeting costs ($X_1P_1 + X_2P_2$), and the proportions of total costs going to transfers to the poor, transfers to the non-poor, reduction of Type I error, and reduction of Type II error—all in terms of **a**, **b**, P_1, P_2, I_o, N_o, and **B**.

The model highlights the following important points:

- There are two types of accuracy: accuracy in reaching the poor and accuracy in excluding the non-poor, each with different effects on costs.
- There exist optimum (i.e., most efficient) amounts of each type of targeting effort and subsidy per beneficiary.
- The optimums depend on the productivity of X_1 and X_2 (i.e., on **a** and **b** respectively), on their relative prices, P_1 and P_2, on the initial numbers of poor and non-poor beneficiaries when X_1 and $X_2 = 0$, I_o and N_o, and on **B**. Factors increasing the productivity and reducing the cost of targeting include high population density, high literacy rate, and availability of communication, transport, and recordkeeping infrastructure.
- The optimum level of screening or outreach effort could be zero depending on the values of these parameters. For example, if the cost of excluding a non-poor person exceeds the savings in subsidies for all reasonable values of subsidy per beneficiary, it isn't worth screening out non-poor people and no effort should be made to exclude the non-poor (i.e., no X_2

should be used). The higher **S** is, the more worthwhile X_2 becomes, implying that screening should be more stringent at high-cost facilities such as hospitals than at low-cost facilities.

- If the objective is equality as opposed to equity, X_2 will be higher, but at the expense of the absolute transfer to the poor.

Important issues falling outside of the scope of the model include:

- Fixed costs of targeting, e.g., surveys, development of registration and recordkeeping systems, extra personnel; and increasing marginal costs of targeting. (Interestingly, in a survey of 104 nutritional programs in Latin America, Musgrove (1993) found "no apparent relation" between "beneficiary numbers and costs per beneficiary.")

- The stringency tradeoff between reducing leakage and increasing coverage (Type I and Type II error), i.e., the problem of unintentionally refusing some poor people benefits in the effort to screen out non-poor people.

- Divergence of objectives and asymmetric information between government planners at the central level and agents implementing policy at the local level. McGuire and Riordon (1992) develop a model in which local agents have superior information on the proportion of the population eligible for benefits, prompting central planners to design contracts which induce local agents to target.

- Rent-seeking by agents administering the means test and lying by applicants.

APPENDIX B SUMMARY EXHIBITS OF SELECTED DEVELOPING COUNTRY TARGETING EXPERIENCE

Exhibit B-1 Key to Abbreviations and Sources in Exhibits B-2 and B-3

ABBREVIATIONS	
SUBJ	Overall subjective impression given in evaluation reports S successful U unsuccessful
INCID/ COVER	Incidence of program benefits accruing to the poor or coverage of the target population (as indicated)
Recipnt	Recipient (beneficiary)
COST	Annual targeting cost (unless otherwise specified) Admin administrative cost including, but not limited to targeting cost (given when targeting cost is unknown) TC total cost of program OC operating cost of program (also called recurrent costs; may not include salaries)
Char	Characteristic targeting based on... D demographic characteristics (e.g., age, sex) G geographic location C condition (e.g., pregnancy, malnutrition, tuberculosis)
Self	Self-selection based on... P subsidized product or type of benefit F facility chosen A level of amenities chosen MA "must apply"—screening does not happen automatically W waiting time or inconvenience of obtaining exemption S stigma
CRITERIA	$ income criteria Proxy proxy criteria or mix of income and proxy criteria
FORMALITY	Formality of criteria, degree of discretion used by person conducting test F formal I informal, discretion may be used

Exhibit B-1 continued

ABBREVIATIONS	
ADMIN	Level and other details of administration of means testing SW social worker conducts means test HW health worker conducts means test V village chief or other local authority conducts or assists with means test
PD	Period or duration of eligibility LT "long term"—eligibility is permanent or indefinite
VERI	Measure taken to verify information provided by applicant Home home visits, usually by social workers Share data sharing with other social services or government agencies (may include wage and tax records) Wage wage records Tax tax records
CR	Cost recovery
?	Information unreliable

SOURCES

(1) Levine et al., 1992; (2) Grosh, 1992a; (3) Pfeffermann and Griffin, 1989; (4) Baker, 1992a; (5) Vogel, 1988; (6) Griffin, 1988; (7) La Forgia, 1992b; (8) Mandl, 1988; (9) Health Economics Unit, Ministry of Public Health and Social Affairs, Central African Republic, 1992; (10) La Forgia, 1992a; (11) Barnum and Kutzin, forthcoming; (12) Baker, 1992b; (13) Huber et al., 1989; (14) Weaver et al., 1990b; (15) Glewwe and van der Gaag, 1988; (16) Mills, 1991; (17) World Bank, 1992.

Exhibit B-2 Developing Country Health Programs with Targeting other than Means Testing

PROGRAM (Sources)	TARGETING PERFORMANCE				MECHANISM	COMMENTS
	SUBJ	LEAK-AGE	INCID/ COVER	COST		
BURKINA FASO Drug Cost Recovery (1)	U				Self (P)	No one given fee care.
COSTA RICA (2, 3)	S		High coverage		Char (D, C)	Dramatic improvement in health outcomes & equity by using epidemiological data to target health & other social services.
DOMINICAN REPUBLIC La Zurza MCH (2, 4)	S	Almost none	>95% incid; 57% missed	Low	Char (D, G, C), Self (P), Home Visits	Low leakage because easily verifiable criteria (e.g., pregnancy). 2,800 recipients in select neighborhoods. Annual TC / recipient of $11.40.
GUINEA-BISSAU (1)					Char (D, C)	Program targeted to women & children, *not* to the poor *per se*.
MALAWI Hospitals (1)	U	High			Char (C), Self (F, W)	
SENEGAL Pikine (1, 5)	S				Char (G), Self (MA)	20-30% of patients get free care.
SINGAPORE (1)					Self (A)	25% hospital and 20% general CR.
SUDAN (1, 6)					Self (A, F)	

Exhibit B-3 Developing Country Health Programs and Other Programs with Means Testing (Non-health programs are shaded)

PROGRAM (Sources)	TARGETING PERFORMANCE				ADDIT MECHS	DETAILS OF MEANS TESTING					COMMENTS
	SUBJ	LEAK-AGE	INCID/ COVER	COST		CRIT-ERIA	FORM-ALITY	ADMIN	PD	VERI	
BANGLADESH, NEPAL, & PAKISTAN, Agric. Credit (1)	Mixed	Low	Benefits go to better-off in target group.		Char (G), Self (P)			Local or Regional			Small farmers & landless workers targeted.
BELIZE Hospitals (1, 2, 7)	U	High		1.2% of OC	Self (F)	$	I in practice	Facility (SW)	LT	None	1-7% hospital CR. Sliding scale fees. National program.
BENIN (8)								Local Committee			
BOLIVIA Pro Salud (1, 2)	S		High incid		Char (G, D)			Local	Each visit?	Home, Share	800,000 beneficiaries. 9% of patients get free care. 91% clinic and 65% general CR. Select regions.
BRAZIL Experiment (1)	U		Many missed		Char (G), Self (MA)	$	I	Facility	LT		0.4% of patients get free care. 20% clinic CR.
CENTRAL AFRICAN REPUBLIC (9)	U	High			Char (D)	Varies by facility	I	Facility			

Exhibit B-3 continued

PROGRAM (Sources)	TARGETING PERFORMANCE				ADDIT MECHS	DETAILS OF MEANS TESTING					COMMENTS
	SUBJ	LEAK-AGE	INCID/ COVER	COST		CRIT-ERIA	FORM-ALITY	ADMIN	PD	VERI	
CHILE (1)	S				Char (G), Self (A)	$	F	Local + Central Registration		Home, Wage, Share	
CHILE Cash Transfers (2)	S	Low	High incid & cover	< 2% of TC	Char (D)	Proxy	F	Local (SW)		Share, Home	Several national programs w/ annual TC / recipient of $32-$4,100 and 20,500-887,000 recipients.
COLUMBIA Student Loans (2)		High	< 50% of benefits to poorest 60%.	Admin is 21% of TC ($148/ recipnt)	Grades Self (P, MA)	$	F	Central		Taxes	Annual TC / recipient of $700. National program w/ 48,000 recipients.
COSTA RICA Health Insurance (2)	S	Low	75% of benefits to poorest 40%; 12% of pop.	1% of TC ($1.30/ recipnt)	Self (F, MA)	$	I	Facility (SW)	Per-iodic	Share	Applicant pool is small & poor. Annual TC/ recipnt of $132. Annual benefit/ recipnt of $150. National program w/ 299,000 recipnts.
COSTA RICA Cash Pension (2)	U		Low coverage		Char (D, C)	Proxy	I	Regional (SW)	LT		Annual TC/ recipient of $350. National program w/ 74,000 recipients.

Exhibit B-3 continued

PROGRAM (Sources)	TARGETING PERFORMANCE				ADDIT MECHS	DETAILS OF MEANS TESTING					COMMENTS
	SUBJ	LEAK-AGE	INCID/ COVER	COST		CRIT-ERIA	FORM-ALITY	ADMIN	PD	VERI	
COSTA RICA Tuition (2)				8% of TC ($7/ recipnt)	Self (P)	Proxy	F	Central		Share	Annual TC / recipient of $88. 25,000 recipients, all at University of Costa Rica.
DOMINICAN REPUBLIC Hospitals (1, 2, 10)	U	High	High coverage	3.2% of OC ($0.35/ recipnt)	Self (W, S)	Proxy	I	Facility (SW)	Each visit		Targeting = 90% of admin cost. Avg. benefit/yr for outpat = $20. <25% hospital CR.
ECUADOR (1)	S				Self (F)	Proxy?	F	Central, Photo ID	3 yrs	Home	
ETHIOPIA (1, 5, 11)	S	Low			Char (C)	$	F	Local (V) w/ Certificate			Vouchers issued to the poor. Burden of proof on patient.
GHANA (1, 5, 8)		Low?			Char (G, D, C)	$	I	Facility (HW)	LT		Considering vague criteria, surprisingly few exemptions are sought.
HONDURAS Hospitals (1)					Char (D, C)	Proxy	I	Facility (SW)	LT		20% receive free care. 5-20% OC or 1-8% TC recovered.

Exhibit B-3 continued

PROGRAM (Sources)	TARGETING PERFORMANCE				ADDIT MECHS	DETAILS OF MEANS TESTING					COMMENTS
	SUBJ	LEAK-AGE	INCID/ COVER	COST		CRIT-ERIA	FORM-ALITY	ADMIN	PD	VERI	
HONDURAS Food Stamps BMI (1, 2)		Low	Low coverage	13% of OC	Char (G, D, C), Self (F, W)	Proxy	mixed	Facility + Central Registration			Health centers in 3 regions used to identify 60,000 recipients. Annual TC / recipient of $50.
HONDURAS Food Stamps BMJF (2)				Admin is 12% of TC ($4.50/recipnt)				Local (Teachers)		Home	125,000 recipients in 9 states. Annual TC / recipient of $40.
INDIA (1)					Char (D, C)	$	F	Local	LT		<1% CR.
INDONESIA Hospitals (1)					Self (A)	Proxy	I	Local (V), Certificate			20% hospital & 3% clinic CR.
JAMAICA Hospitals (1, 11)	U	High		Low	Self (MA, F)	$	F	Facility, Prospective	LT	Home, Share	Food stamp recipients automatically exempt. 6-24% CR.
JAMAICA Food Stamps (1, 2)	S	8%	47% to poorest 20%; 50% missed	Admin is 10% of TC ($4/ recipnt)	Char (D)	$	F	Local (V) or Central + Central Registration	per-iodic	Home, Share	National program w/ 200,000 recipients. Transfer / recipient of $51.
JAMAICA Student Loans (2, 12)		Moder-ate; high default rate	40-60% of recipients are poorest 40%; still, many can't afford college	5% of loans ($40/ recipnt)	Grades Self (P, Major)	$	F	Central		Share	National program w/ 2,520 recipients. Annual TC /recipient of $784.

Exhibit B-3 continued

PROGRAM (Sources)	TARGETING PERFORMANCE				ADDIT MECHS	DETAILS OF MEANS TESTING					COMMENTS
	SUBJ	LEAK-AGE	INCID/ COVER	COST		CRIT-ERIA	FORM-ALITY	ADMIN	PD	VERI	
KENYA Mission (1)	U				Self (F)	Proxy	I	Facility			
KENYA National Hospital (1, 11)	U			High	Char (D) Self (A, F, MA)	$?	F	Facility (SW)	LT		Fees levied only on adult inpatients.
KENYA NGO Clinics (13)		Low			Self (MA)	Proxy	I	Facility (HW) Local (V)			
KENYA Secondary School Fees (13)					Self (P, MA)	$	F	Local		Share	
KENYA Cash (13)					Self (MA)	$	F	Local + District Reg		Share	
KOREA Hospitals (1, 11)					Char (G, D, C) Self (F)	$	F	Central, Prospective		Share, Wage	3-tiered fee structure. High CR. Large private sect.
MALAYSIA (1)	U				Self (W)	$	I	Facility (SW)	LT		5% CR.
MALI Hospitals (5)	U	High			Char (D, C), Self (A)			Local (V), Certificate (in theory)			70% of patients get fee care. 7-27 percent CR of recurrent costs.
MEXICO Free Tortillas (1, 2)	S	Low (was high)	25% of urban general population covered	Very cost effect-ive	Char (G), Self (P, F, MA)	$	F	Local (SW) + Central Registration, ID Card	6 mos	Home	National program w/ 13.5 million urban recipients. Annual TC / recipient of $26.

Exhibit B-3 continued

PROGRAM (Sources)	TARGETING PERFORMANCE				ADDIT MECHS	DETAILS OF MEANS TESTING					COMMENTS
	SUBJ	LEAK-AGE	INCID/ COVER	COST		CRIT-ERIA	FORM-ALITY	ADMIN	PD	VERI	
MEXICO Subsidized Milk (2)		40%	65% of recipients below 1.5 min. wages; 38% missed in target areas; 50% missed nationally	High; Admin is 29% of TC ($5.75/recipnt)	Char (G, D), Self (P, F, W)	$	F	Local (SW) + Central Registration, ID Card	1 yr	Home	National program w/ 10 million recipients. Annual TC / recipient of $20.20.
MOROCCO (1)	U	High	Low incidence		Self (F)	$					8% hospital CR.
NIGER National Hospital (14)	U	High			Char (D) Self (A)			Facility (SW)			60% of outpats & 40% of inpats pay nothing. Low CR.
PAPUA NEW GUINEA Hospitals (1, 11)	U				Char (D, C) Self (A)			Facility	LT		5% hospital CR.
PERU Food (1, 2)	S			4.2% of TC ($0.72/recipnt)	Char (D, C), Self (W)		F	Facility (HW?)			Transfer = $9.7 and admin cost = $3.6 / recipient.
PHILIPPINES (1)	U				Self (A)?		I	Facility (SW)	LT		65-85% of patients get free care. 10% hospital & 4.6% general CR.
SENEGAL (1, 2)	U	About 50% in hospital			Char (D, C) Self (A)	$	Varies by fac-ility	Local, Certificate	LT		

Exhibit B-3 continued

PROGRAM (Sources)	TARGETING PERFORMANCE				ADDIT MECHS	DETAILS OF MEANS TESTING					COMMENTS
	SUBJ	LEAK-AGE	INCID/ COVER	COST		CRIT-ERIA	FORM-ALITY	ADMIN	PD	VERI	
SRI LANKA Food Stamps (1, 15)	U	>15%	20% missed	Low	Self	$	F	Central	LT	Neigh-bors	7 million households covered (13 million in previous program).
ST. LUCIA Hospitals (11)	U	High	High coverage (access)		Char (D, C)	$		Facility			93% of the pop. eligible for hosp. exemptions.
SWAZILAND Government (1)					Char (D), Self (F, W)	Proxy	F	Local			84% hospital CR.
SWAZILAND Mission (1)					Self (A, F)	Proxy	F	Facility			Even higher CR than gov't.
THAILAND New (1, 16)		High	20% of population			$	F	Central, ID Card	3 yrs		National program w/ 11 million cardholders. 50% hospital CR.
THAILAND Old (1, 16)	U					$	I	Facility (HW)	LT		
ZAIRE (1)	U				Char (D, C), Self (MA)		I	Facility (HW)	LT		<10% patients get free care. Avg. transfer / recipient of $0.50. 70-100% CR.
ZIMBABWE (1, 11 17)	U	High	High coverage?	Low?	Char (D, C) Self (A, F)	$	F	Facility			CR is low due to low fees & weak collection. Burden of proof of patient.

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